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Women Who Changed Their Lives



Literary agent Denise
Marcil, one of millions
of women who've made
a successful business
at home.

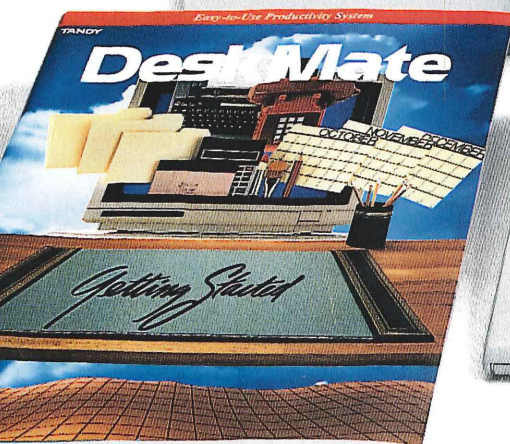
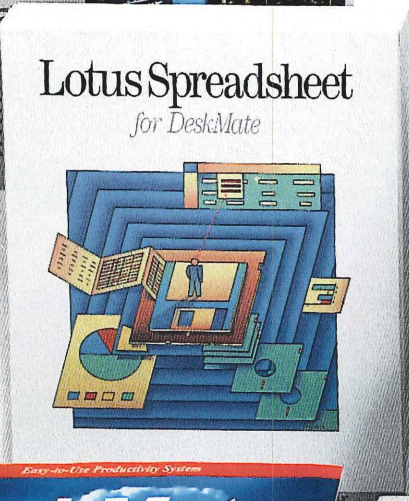
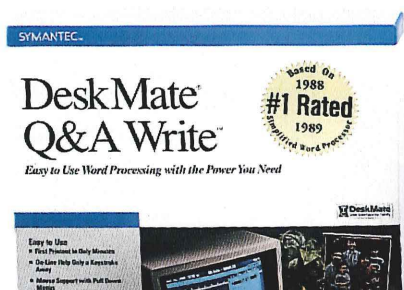


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FEATURES

COVER STORY

Five Women Who Changed Their Lives

Page 43

More than 3.8 million women in this country run home-based businesses with the help of computers. What are the special attractions working from home holds for women? Here, HOME-OFFICE COMPUTING profiles five women—two newsletter publishers, a literary agent, a crafts wholesaler, and a telecommuting programmer—who succeeded not only in getting their businesses off the ground but also in mastering the technology that helped their businesses expand. *Plus:* A software starter library.

BUSINESS MANAGEMENT

Wring Your Phone for All It's Worth

Page 49

Your phone could be doing a lot more for you than sitting there waiting for calls to come in. With a little communications savvy, that Ma Bell paperweight could be doing double or triple duty for your business. Here you'll learn about cost-saving, productivity-boosting, and image-enhancing ideas for your telephone.

TECHNOLOGY

Avoiding the Cost of a Second Line

Page 53

A recipe for disaster: Take one phone line, add one telephone, blend in an answering machine, fold in a fax machine and maybe a dash of modem . . . You can avoid this mess, as well as the cost of additional phone lines, with new fax switches that increase the flexibility of your one phone line inexpensively and painlessly. You'll find out how they work and what features to look for as you shop.

CD-ROM: Is It for You?

Page 55

The massive storage capabilities of CD-ROM technology are spectacular—an encyclopedia on disk, an illustrated atlas at your fingertips. Here, you'll learn about the new flood of exciting CD-ROM software and drives that just might convince you to go optical.

PROFILE

On My Own, Part IV: Planning and Building an Office

Page 59

How do you fit a full-fledged office into your house? In this installment of HOME-OFFICE COMPUTING's series on one person's shift from a corporate to a home-office lifestyle, you'll learn how to find the perfect location for your office.

SOFTWARE

Rating the New Lotus 1-2-3s

Page 61

The classic spreadsheet program, Lotus 1-2-3, has sprouted two important new blossoms: Release 2.2 and Release 3. These new versions could bring a bevy of newer, more powerful spreadsheet features to your business. How do the two packages differ? And, more important, which one would be the best match for you?

PRODUCTS

Product Previews

Page 18

First looks at new hardware, software, and office products by HOME-OFFICE COMPUTING's editors. *This month:* Hot new products and trends from the Winter Consumer Electronics Show.

Hardware Reviews

Page 64

Miniguide to 286-Based Computers: Reviews and a side-by-side comparison of Dell's System 210, Magnavox's MaxStation 480, and NEC's PowerMate 286 Plus. *Computer:* NEC ProSpeed 386. *Portable Answering Machine with Fax:* Panasonic KX-F80. *Telephone:* Southwestern Bell's FD 8100.

Office Essentials

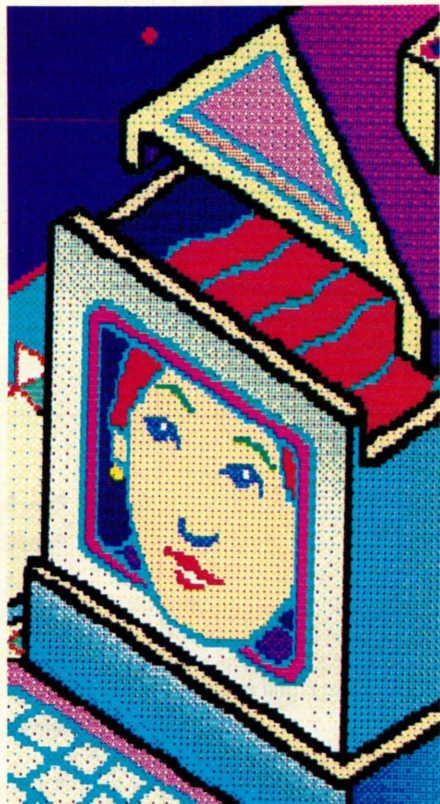
Page 70

The latest in office products, services, and gadgets. *This month:* Stylish computer furniture, a cornucopia of office supplies, extradurable floppy disks, and more.

Software Reviews

Page 72

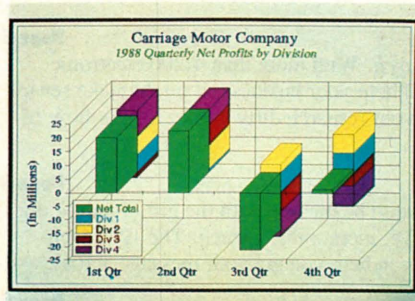
Reviews of *SmartWareII* and *AppleWorks*—two integrated packages that combine word-processing, database, and spreadsheet functions; *TimeSheet Professional*, a powerful billing program; and *Complete Calendar*, a handy, intuitive schedule manager. Capsule reviews of *MacEnvelope Plus*, *SoftBreeze*, and *Time Is Money*.



Page 43



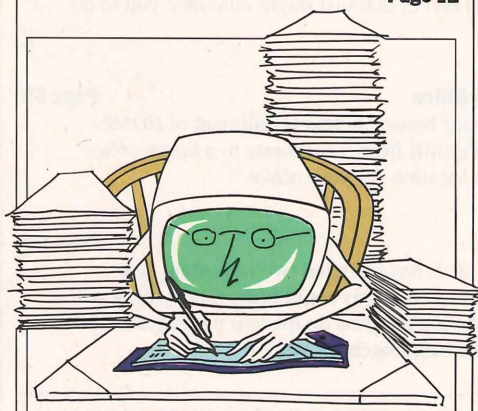
Page 18



Page 72



Page 12



Page 34

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COLUMNS

Clinic

Page 16

Answers to Your Computing Questions. HOME-OFFICE COMPUTING's editors answer readers' questions about switching disks between a dedicated word processor and a personal computer, evaluating dot pitch and resolution when shopping for a monitor, and choosing between a mouse and a track ball. *Plus:* Making your own modular cords.

Working Smarter

Page 40

Little Things That Make Work Easier. Little things *do* mean a lot—especially to a harried home-based professional, according to columnists Paul and Sarah Edwards. Here is their list of 11 doodads that you might have missed on your last trip to the office-supply store or computer warehouse.

Workstyles

Page 88

The Quick-on-the-Draw Independent. According to our telecommuting senior editor Nick Sullivan, the independent, home-based entrepreneur epitomizes a spirit long gone from American big business. With the aid of technology, homeworkers can deliver responsive, personal service that large corporations can only envy.

DEPARTMENTS

Editor's Note

Page 6

Letters

Page 8

Up Front

Page 10

News, advice, tips, and a shot of humor on computing, using home-office technology, and running a home business. *This month:* Airlines search laptops, a new Supreme Court ruling on cordless phones and privacy, the best hotels for traveling technophiles, 20 things a home-based professional can do to better the environment, and more.

Word Processing

Page 22

Get the Words Right or You'll Lose Business, Money, and Face. Don't wait to learn about the importance of proofreading the hard way. Embarrassing spelling and grammar gaffes are hard to explain away. Here, you'll find some proofreading basics and learn how to develop a "typographic eye" for spotting mistakes.

Desktop Publishing

Page 26

Nine Questions to Ask a Professional Printer. All the computer and desktop-publishing knowledge in the world can't help you get the most from an outside printing service. Here are the nine critical questions to ask your printer before you go to press that will help you get what you want for the right price.

Software Solutions

Page 30

Last-Minute Tax Return Tips. Eleventh-hour tax advice is all well and good, but here are some practical examples for using your spreadsheet to help with tax preparation. Using these tips, you can check your calculations, try out some what-if tax scenarios, and even plan for next year's taxes.

Finance

Page 34

Is Check-Writing Software Useful? How could you benefit from computerizing your business and personal checking accounts? This story of how one person incorporates *Quicken* into his business could open your eyes to the many record-keeping advantages and sheer convenience of automated check writing.

Telecomputing

Page 36

Hiring an Information Specialist to Do Research. With more than 4,200 electronic databases brimming with information that could help your business, it might make sense to hire a professional information broker to do your research dirty work. Here's how to find the right one.

Business 101

Page 38

How to Write a Great Speech. You don't have to be blessed with the gift of gab or dig into a bag full of gimmicks to deliver an effective, memorable speech. The 10 speech-writing secrets unveiled by speaker Pete Silver can help you get your message across.

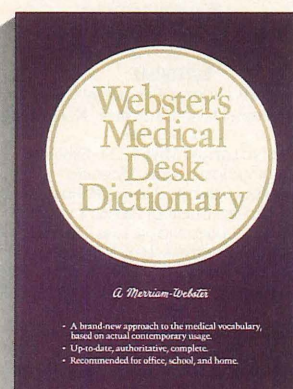
Home-Office Shopper/Classifieds

Page 82

Advertiser Index

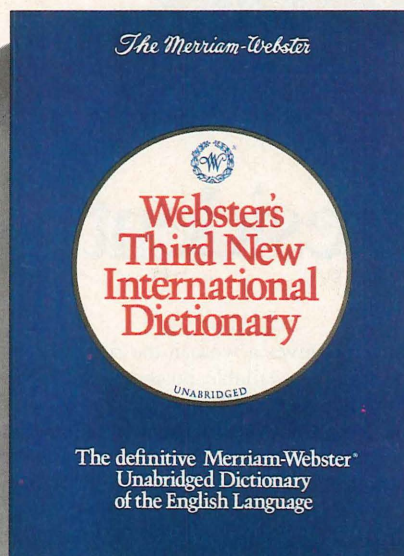
Page 87

To succeed in business, you need excellent references.



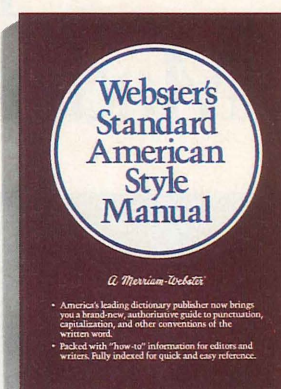
"This new medical dictionary will take its place, within easy reach, on my shelf of reference books."

Lois DeBakey
Baylor College of Medicine



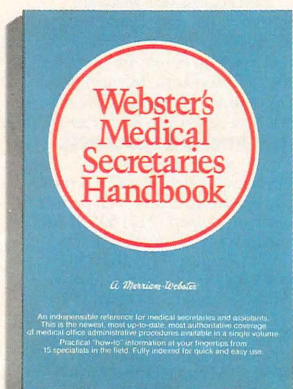
"It's the closest we can get, in America, to the voice of authority."

The New York Times



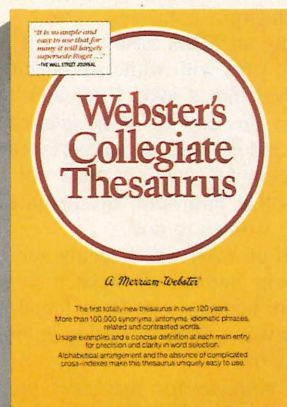
"Useful to the executive, secretary or any other person who must compose memos, reports, letters, newsletters and more."

Office Systems '85



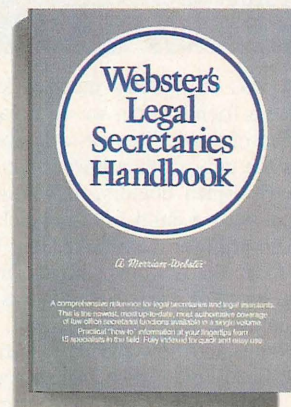
"This is a tightly-packed book of facts for medical secretaries and medical assistants/administrators... this one is comprehensive and handy."

Library Journal



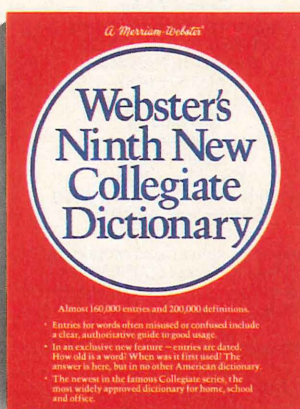
"It is so simple and easy to use that for many it will largely supersede Roget's..."

The Wall Street Journal



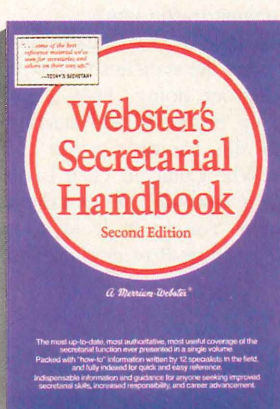
"A useful addition to the library of any young lawyer starting in practice, an office administrator or manager, or the desk of a legal secretary."

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CIRCLE READER SERVICE 45

Hello, Madam President



When I was still pretty much a kid, my sister had a friend whom we all regarded as some kind of freak: She was a lawyer. And she was the only woman lawyer I knew.

I knew women doctors, and maybe that was because as a child I did get sick but as yet had no need for the services of a lawyer. In any case, these women physicians were oddities, too. For some reason it was important to know if they were married, if they had children and how old they were, what their husbands did (most were doctors, of course), and why they had gone into medicine.

Even in college, I remember a girlfriend explaining to me that our friend Mary hadn't been accepted to medical school even though she had better grades than some of the guys who had gotten in—probably because after all that training was poured into her, she'd just get married and have kids and would never practice medicine. A female applicant, she explained, had to have much better grades than a male to be accepted.

In the years since then, we've seen great numbers of women enter just about every field of work imaginable, but probably not with as much success as in law or medicine. Until now I'd never thought about it, but it makes perfect sense.

It's common for doctors and lawyers to set up independent practices where they run the whole show. They start at the top and stay there. As their practices grow, the top just gets bigger, and so do the rewards. There are no hierarchies or career ladders to climb unless they work for somebody else.

The opposite is true in business. The de-

gree just gives a woman the right to scramble for the available positions, the number of which gets smaller as she gets closer to the top. And much like it was when my friend Mary tried and failed to get into medical school, women have to stand out as more exceptional than the male candidates they're competing against as they climb higher up the ladder.

After a few years of scrambling, many women feel that they're climbing a different kind of ladder, one that has no rungs near the very top. We hear a lot of talk about that corporate glass ceiling, the impenetrable barrier at the top.

Getting an MBA hasn't done it; wearing pinstripe suits with white shirts and silk ties has turned into a joke; there aren't enough hours in the day to work late enough to matter; and good ideas and performance just don't seem to count, at least not enough. What is that burnt-out, disappointed, hard-working woman to do?

Based on what we're seeing and hearing, a growing number of women in business today are taking a cue from female doctors and lawyers. They're setting up businesses on their own.

Why struggle for that next promotion? Why jockey to become yet another vice president? Why stew over not getting into the decision-making loop?

Why deprive yourself of time with your children and be plagued with guilt? Why always eat on the run? Why keep rushing for that train or that traffic jam?

Why not just take a deep breath and go home? That's what the statistics tell us more and more women are doing. They're going home, setting up business, and starting at the top. Read this month's cover story, "Five Women Who Changed Their Lives," to find out how five women are making a go of it on their own. You might decide to give it a whirl. *Hello, Madam President.* How does that sound?

Claudia Cohl

CLAUDIA COHL
EDITOR-IN-CHIEF

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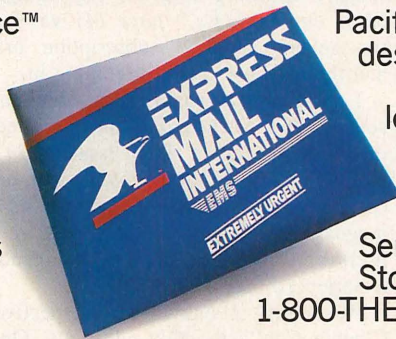


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LETTERS

WHERE ARE THE KIDS?

I am very impressed with the article on Judi Devin ("When Bigger Doesn't Mean Better," December 1989, page 60) as well as the other success-story profiles you publish. One thing seems to be missing, though. Do any of these people have children? The main reason I chose to work from home was to be with my kids. This facet of the work-at-home experience seems to be left out of the stories of how the successful became successful.

I know that splitting your time at home between work and kids can cut into your income, but to me, real home-office success means both building a business and raising a family.

TINA BUEKER
Irving, Texas

GOING HOME

I enjoyed Nick Sullivan's January Workstyles column very much ("Minding Business, Minding Kids," page 112). In fact, I read it on the way to the pediatrician's office with my own, newly significant, diaper bag in tow.

I decided to move my business to my home a few years ago after my then-three-year-old son called me at my office and said, "Dad, wanna come over to my house today?" (Yep, it was the same place I called my house.)

Thanks to a fax machine, an e-mail service, a personal computer, a voice-mail system, and the rest of my technological life-support system, I made it through my son's "tender years" and am now making it through my young daughter's as well.

GAYLON J. HORTON
Los Angeles, California

GETTING THE WORD OUT

Let me tell you unequivocally that HOME-OFFICE COMPUTING's readers are interested in word processing. The response to your mention of our newsletter for independent word-processing professionals, *Keyboard Connection*, more than a year ago in the January 1989 ShopTalk column ("Turning Word-Processing and Foreign-Language Skills into Business," page 14) was fantastic—several hundred subscription orders, and the responses are still coming in.

I think your magazine is an excellent resource, and *Keyboard Connection* recommends it to readers. Each issue of HOME-OFFICE COMPUTING covers important computer- and business-related issues in a language that's easily understood by new users yet doesn't insult the intelligence of experienced users.

Personally, I enjoy the perspective of Claudia Cohl's monthly editorials. One of my favorites showed her with her fax ma-

chine while on vacation in Maine ("What Do Plaid Pants and Buyer's Guides Have in Common?," November 1988, page 6).

NANCY MALVIN
EDITOR, KEYBOARD CONNECTION
Troy, Illinois

BONNE CHANCE

After reading only three issues of HOME-OFFICE COMPUTING I decided to start a home-based videotaping service here in Bougival. I was particularly motivated by the experiences of Virgil Miller in Lynie Arden's story ("The Hottest Franchises for the Home-Based," June 1989, page 41).

I am very impressed with the professionalism of the many American home-based businesses you profile. They all seem to be run so efficiently. Here in France we have much to learn.

My thanks to your staff for producing such a fine publication.

Encore, merci.

PHILLIPE BAUCHER
DIRECTOR, ORIGINAL VIDEO
Bougival, France

ONE-STOP INFORMATION SOURCE

This is the first letter I've ever sent to a national magazine. I felt compelled to let you know how much I enjoy HOME-OFFICE COMPUTING. I first heard about your magazine on a radio program on KABC here in Los Angeles. A few weeks later, I saw an issue in a local bookstore and decided to give it a try.

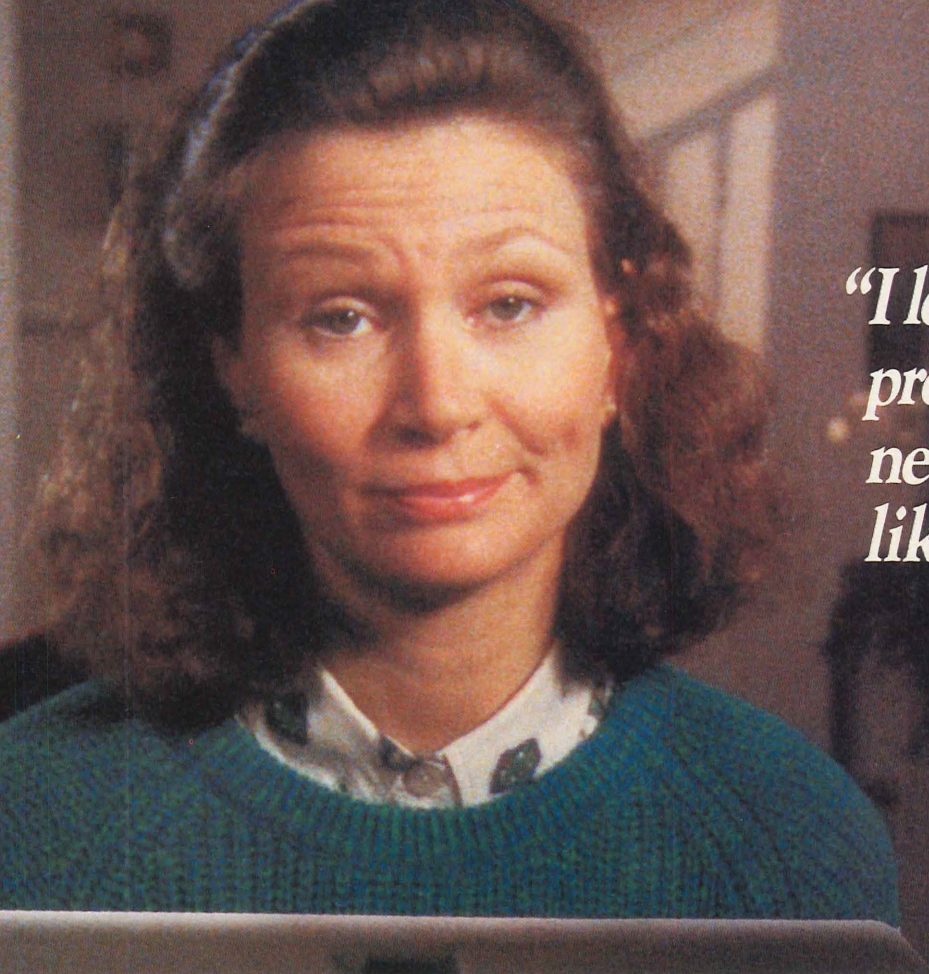
At the time, I was subscribing to the *Wall Street Journal* and *PC Magazine* to cull what little information there was on specific home-office computer issues. I have since canceled both of those subscriptions and now eagerly await the arrival of HOME-OFFICE COMPUTING each month.

MARILYN J. MONTGOMERY
BOOKKEEPING ASSOCIATES
Brea, California

CORRECTION

We incorrectly reported the type of microprocessor in the Compaq LTE/286 in "Heavy-Duty Lightweights," February 1990, page 14. The chart should have indicated that the computer's microprocessor is a 12-MHz 80C286.

HOME-OFFICE COMPUTING looks forward to letters from all readers. Please direct correspondence to Letters to the Editor, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. Include name, address, and telephone number. Letters become the property of HOME-OFFICE COMPUTING and may be edited for length and clarity.



"I learned word processing, but new software is like starting over."

Discover the DeskMate™ Difference... the Friendly Face in the PC crowd.SM

If you've shied away from PCs because you thought they were too intimidating, now there's good news!

Say hello to DeskMate, the Graphical User Interface that replaces confusing commands with simple, plain English. Leading software publishers are adopting DeskMate to give their programs a friendly look and feel. The proven DeskMate format guides you through each program with simple "point-and-click" convenience.

Your key to "software ease."

Popular programs with the DeskMate Interface include the new *Lotus Spreadsheet for DeskMate*, *Q&A Write*, *PFS:First Publisher* and *Quicken*. Use one, and you've essentially learned how to use them all.

Take the Tandy "power-and run test." DeskMate works with any PC compatible. But since the most popular Tandy PCs have DeskMate built in, you can be up and running in just a few seconds!

You'll be greeted by the friendly face of DeskMate, complete with a neat, organized listing of *all* of your programs. There's simply no comparison in ease of use.

Special offer! Come in for a free DeskMate demonstration, and we'll give you a certificate for *15% off* any DeskMate software!



Discover the DeskMate Difference for yourself . . .
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EDITED BY KAREN KANE

Twenty Ways You Can Better the Environment

Twenty years have passed since the nation's environmental consciousness was raised by an event called Earth Day. Whether conditions have significantly improved is open to debate. I'd like to think so, but I still do all I can to clean up the environment.

What can one person, or one small business, possibly do about our nation's environmental woes?

Surprisingly, more than you think! Homeworkers are already making a significant contribution by avoiding the rush-hour traffic that fouls our air and scars our landscape. Since decision-making power is one of the benefits of business ownership, use your position to make your community cleaner and safer. Environmental activism is expected to be a major trend of the nineties.

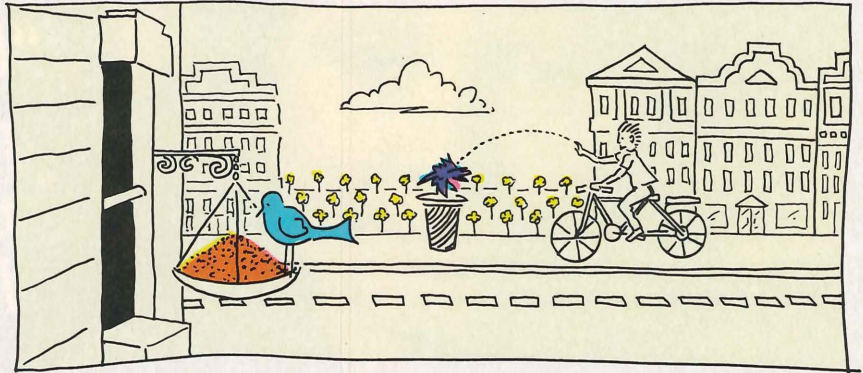
Read my list below and incorporate at least three suggestions into your daily business routine. Don't think your efforts are insignificant. After all, the environmental movement was launched on April 22, 1970, when small groups of people gathered to pick up litter and hold a funeral for the automobile.

1. Since you work at home, try to leave your car parked and unused at least one day a week. Walk or ride a bicycle to your destination. Or just spend the day catching up on paperwork.

2. Use public transportation if it is available in your area. If it isn't, campaign for it.

3. Instead of taking a coffee break, take a walk through your neighborhood. Pick up trash along the way.

4. If you find yourself calling Federal Express regularly to make pickups at your home business, consider investing in a fax machine. If you have work that cannot be faxed, find the nearest Federal Express or Express Mail drop box. Walk or bicycle to the box. If you can't do that, make that stop while you're doing other errands. Don't make a special trip.



5. If you make frequent runs to the local print shop, consider investing in a small photocopier.

6. Hang a bird feeder outside your office window. Better yet, plant trees and flowers. Pick a species that will attract birds and butterflies. Plant a garden and keep it organic to decrease your exposure to pesticides.

7. Use recycled paper products. Write for a catalog from Earth Care Paper, Inc., P.O. Box 3335, Madison, WI 53704. It contains a good selection of stationery stock, envelopes, and computer paper.

8. Ask your printer to stock recycled paper.

9. Recycle your own paper. If you cannot find an organized recycling program, bring your paper, cans, and glass to the nearest recycling center.

10. Donate the recycling money to your favorite conservation organization in your business's name. It will establish goodwill and give you a tax write-off. If you can't donate money, donate supplies. Unused paint could go to a local theater group, old office furniture to a charitable organization. Books and professional journals can go to schools or libraries or be circulated among your colleagues.

11. Buy used furniture. You'll save money and trees.

12. "Precycle" by avoiding products that pollute. Say you don't need that plastic bag the next time you shop at the office-supply store.

13. Dispose of hazardous waste properly. Items such as batteries, aerosol cans, and paint should not be discarded in the trash. Learn how your community handles such materials.

14. Make yours a paperless office by keeping notes and records on disk.

15. When sending out correspondence that requires a reply, use prestamped postcards rather than a sheet of paper and a return envelope. You'll use less paper and get a better response from people who like efficiency.

16. Save junk mail and use the blank back side for scratch paper.

17. Turn off lights and machines you're not using—throughout the house, not just in your office.

18. Line your garbage cans with degradable plastic bags.

19. Avoid Styrofoam. Shredded newspaper is a good packing material and insulator. Offer clients their coffee in a ceramic mug rather than a Styrofoam cup.

20. Pick a fourth suggestion and incorporate that into your business. Every little bit helps.

—CHERYL KOENIG MORGAN

Give Credit Only When It's Due

You put your credit card on the counter and say, "Charge it." The clerk dutifully takes your card and prepares a charge slip. "Address and phone number, please," he or she requests. You begin writing. But, wait. Have you ever wondered why merchants need that information?

While it's common practice to ask for such information, only the charge slip and signature are required by any credit-card company. Then why do they ask? Well, it's an easy way for retailers to build a list of

customers for telemarketing and direct-mail campaigns. Some may even sell their lists to other businesses.

To combat such dealings, New York State has made it illegal for merchants to ask for your address and telephone number on the charge slip. First-time offenders can get socked with a \$250 fine, and repeat offenders pay \$1,000 for every slipup.

When you pay by check, you are often asked to give the same information. You must verify your identity by displaying your

driver's license and a major credit card, and many store managers ask their employees to copy the details onto the check to prove that they checked ID. But under no circumstances are you required to sign a statement stamped on the back of your check authorizing payment using your credit card should the check bounce. Visa, MasterCard, and American Express do not endorse this method of refinancing.

As always, caveat emptor.

—CONAL LI LARKIN

HOW TO DRAW FLOORPLANS FOR: RETAIL STORES, FACTORIES, DENS, LABORATORIES, WAREHOUSES, KITCHENS, LIVING ROOMS, STORAGE FACILITIES, BOAT YARDS, AUTOMOBILE DEALERSHIPS, RESTAURANTS, CONFERENCE ROOMS, MANUFACTURING ASSEMBLY LINES, GREENHOUSES, REMODELING PROJECTS, BACK YARD DECKS, R&D BUILDINGS,

AutoSketch. Now you know how to draw. And how to measure, stretch, scale, mirror, copy, dimension and annotate.

AutoSketch is the powerful, high-precision PC drawing tool that lets you draw floorplans with a professional flair.

Just \$149.95. AutoSketch is the best value in drawing software in its price range. And you can add a number of third-party floorplan symbol libraries for even more performance.

For floorplans that draw rave reviews, call your local software reseller today. Or call Autodesk at 800-223-2521 to order direct.



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CIRCLE READER SERVICE 31

Big Brother Is Listening

Early this year, the U.S. Supreme Court upheld the ruling of a lower court stating that the privacy of conversations made on cordless phones cannot be assumed. This is of great importance to doctors, lawyers, and consultants who have a duty of confidentiality to their patients and clients. The Court advises people in these businesses not to use cordless phones.

Last year, Congress passed rules requiring privacy for conversations on cellular phones. But even so, privacy cannot be assumed with cellular phones either, since anyone with a modern police scanner can probably listen in. —RICHARD SHEFFIELD



Even Dolls Are Doing It



We were delighted to learn that even Barbie is riding the home-office wave. She set up her home office in 1985 and has been working in it ever since. Barbie likes the flexibility working from home allows her. She can get work done during off-hours and still keep up with her hectic schedule and active social life.

The Power of Positive Thinking

Good times are ahead for small businesses, according to two separate nationwide surveys. The 1990 Small Business Outlook Survey, conducted by The Reliable Corporation office-supply marketer, reveals that 78 percent of the 3,100 small-business executives polled expect their businesses to grow at least as fast as the country's gross national product through the 1990s. Sixty percent say the country's general business outlook for the 1990s is excellent or good, while 40 percent say fair or poor.

The National Federation of Independent Business, the nation's largest small-business advocacy organization, conducts a similar survey quarterly, which measures economic conditions on an Optimism Index. Their latest figures indicate that American small-business owners' spirits were up in the end of 1989 and the beginning of 1990.

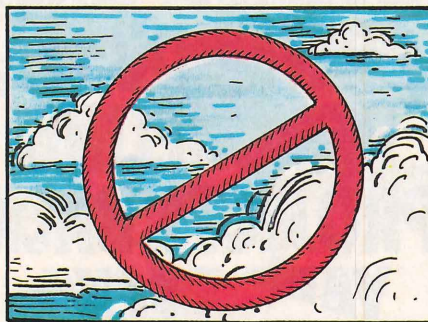
Positive responses to economic factors such as inflation, spending plans, and borrowing potential, for example, upped the Optimism Index several points. —K.K.

For Laptop Users, the Skies Aren't So Friendly

Since last year's downing of Pan Am Flight 103—allegedly caused by explosives hidden in a tape player—airlines have been extra cautious about allowing electronic devices on flights. If you've tried traveling with your laptop lately, you may have noticed that the skies are not always friendly. Laptops are often a cause for suspicion on the part of airport security.

Over the past year, there has been talk around the Federal Aviation Administration about banning carry-on electronic devices from commercial aircraft. At this point, no such regulation has been adopted.

Each airline has developed its own policies concerning laptop computers. Generally, when you go through airport security, the guards will ask you to turn on your computer to show that it works. If your batteries are dead or your screen is out, you might not be allowed to bring the computer on board. How strict airlines are on this point depends on which carrier you fly and



whether your flight is domestic or international. On flights from Los Angeles International Airport to Asia, for example, Northwest gives its employees the option to ban any electronic device that they believe might pose a security risk.

Federal Aviation Administration regulations do give commercial airlines the right to forbid passengers from using any electronic device in flight that could cause a safety risk. This usually applies only to radi-

os or cellular phones. These give off electronic signals that could, for example, confuse a plane's computerized landing systems. Laptop computers, however, are not likely to give off enough of a signal to cause interference.

Aside from these regulations, laptop computers are subject to the same rules as any other carry-on baggage. You must be able to fit them under the seat in front of you or in the overhead compartment. And most airlines require that you keep them stored during takeoff and landing.

If you are planning to travel with your laptop, it's a good idea to find out about your airline's policies before you fly. A quick call to a customer service representative should give you all the answers you need. Also, make sure your computer is working before you fly. Five minutes before takeoff is no time to find out that you have to leave your laptop behind.

—STEVE WILLIAMS

AW... What the Heck!

We REFUSE to Raise Our Prices!

DesignCAD 3D \$ 399

WE REFUSE TO RAISE PRICES!

"We have dealers—even from foreign countries—call and tell us they could sell a lot more DesignCAD 3D at higher prices because some of their customers can't conceive a true 3D solid modeling program costing only \$399. They ask us to raise our prices because they know it's worth more, much more. But look at the history of our company: We just don't believe in inflated prices! An excellent CAD system shouldn't cost any more than a good word processor. So we still say, "Aw...What the heck! We refuse to raise our prices! Let's see the other guys beat this deal!"

WHY BUY THIS ONE?

There is a very important reason to buy DesignCAD 3D other than price: PERFORMANCE. DesignCAD 3D provides complete 3-Dimensional drawing capabilities. It's not a "warmed-over" 2D program. DesignCAD 3D allows you to draw any entity in 3-D space. This means, for example, that you can draw a curve in the shape of a spring. You can draw a circle or arc at ANY angle on ANY plane.

DesignCAD 3-D gives your Personal Computer the power of a mainframe CAD system! With DesignCAD 3-D, you can produce complete 3-dimensional models and drawings that were once considered impossible on a microcomputer!

Complete 3-Dimensional design features make it easy for you to construct realistic 3-D models. With full solid-object modeling capabilities you can analyze you drawing to determine the volume, surface area or even center of gravity! DesignCAD 3-D even permits you to check for interference between objects! Aeronautical Engineers can now find the center of gravity for a new airplane design with a couple of key-strokes. The Architect can determine the surface area of a roof for decking in a matter of minutes. The Civil Engineer can calculate the volume of a lake or dam in seconds. The Mechanical Engineer will know for sure if certain parts fit together without interference. The uses for DesignCAD 3-D are only limited by YOUR imagination!

DesignCAD 3-D supports more than 400 different peripheral devices, including more than 250 printers (dot-matrix, laser printers, color printers, etc.), 80 plotters, most mice and digitizing tablets, and a wide variety of graphics cards and displays.

Once again, American Small Business Computers has proved that you don't have to spend a lot of money to get quality software. DesignCAD 3-D provides features such as Shading, Solid Object Modeling, Hidden Line Removal, and Cross Sectioning capability. All for only \$399. No other 3-Dimensional CAD system can come close to providing the price/performance of DesignCAD 3D.

VERY EASY TO USE!

DesignCAD 3-D has consistently proven itself to be faster and easier to use than most competing CAD systems. In a national competition DesignCAD 3-D was matched in drawing speed by only one other CAD system. It cost \$3,000. DesignCAD 3-D was able to perform a given drawing in nearly half the time as packages costing up to \$5,000.

Customers frequently remark at how quickly they are able to learn DesignCAD. Many also comment about the power of DesignCAD.

Dr. Stephens of NASA states: "One of the things I like best [about DesignCAD 3D] is that I can pick it up and go with it." Dr. Stephens, who evaluates and recommends software for purchase by NASA, says software must meet certain criteria: "One, it must work. Two, it must be user friendly and easy to use. I push it [DesignCAD 3D] as far as I can push it. We're not using it as a toy down here, and I resent the fact that some people believe that a product's ability is substandard because of its price."

Jan Hallett, an engineer at Allied Chemical states: "We use it extensively here and are really sold on it. Plant layouts, pipe runs, fabrications, along with a lot of other things are drawn and designed. I've got AutoCAD, but very seldom if ever use it anymore."

PC MAGAZINE SAYS...

DesignCAD 3D, the latest feature-packed, low-cost CADD package from American Small Business Computers, delivers more bang per buck than any of its low-cost competitors and threatens programs costing ten times as much. For a low-cost, self-contained 3D package... DesignCAD's range of features steals the show."

HOW DO I GET ONE?

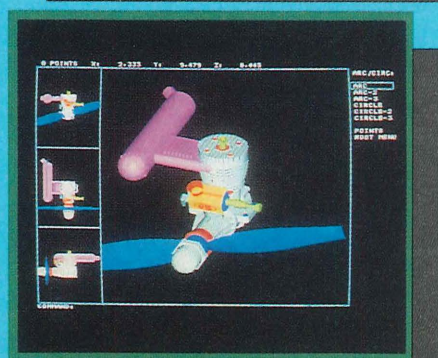
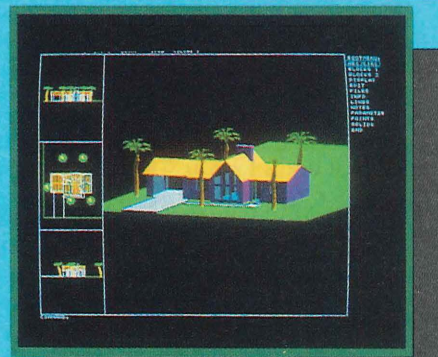
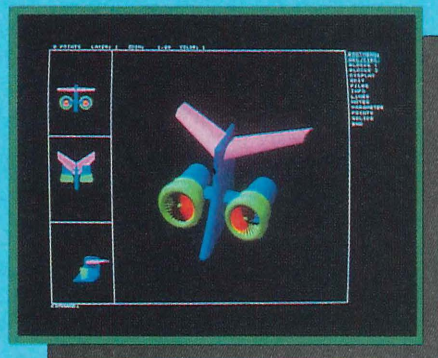
DesignCAD 3-D and DesignCAD 2D are available from most retail computer stores, or you may order directly from us. If you have questions about which program to purchase please give us a call. All you need to run DesignCAD 3-D is an IBM PC or compatible computer with 640 K RAM memory and a hard disk. Both products support most graphics cards, printers, plotters and digitizers. Free Information and a demo disk are available.

VERY POWERFUL!

DesignCAD 3-D version 2.1 is as powerful as most CAD systems costing \$5000-\$10,000! Features like: Complex Extrusions, a true 3D color-coded cursor, full shading or rendering capability, Blending of Surfaces, Complex Sweeps and Translations, and Boolean Operations make DesignCAD 3-D one of the most powerful 3-D CAD systems available...at any price! Engineers, Architects, and Consultants constantly tell us that they use CAD systems costing thousands of dollars which are not as powerful as DesignCAD 3-D.

BYTE MAGAZINE SAYS...

"At \$399, DesignCAD 3D was the least expensive package we saw, yet it was one of the more powerful. ..Don't be fooled by the remarkably low price, this program can really perform!"



American
Small Business Computers, Inc.
327 South Mill Street
Pryor, OK 74361
(918) 825-4844 • FAX: (918) 825-6359

Software Pirates Can Come Clean, No Questions Asked



Software piracy, the duplication of software for any reason other than to make a personal backup, is rampant. Bootleggers range from friends sharing games to large corporations making hundreds of illegal copies of a program to distribute to their employees. This casual theft is costing the software industry an average of \$2 billion a year, according to the Software Publishers Association (SPA).

A few software companies have fostered software amnesty programs to combat their losses. They have asked people with illegal copies of their programs to come forward—risk-free. In exchange for a small fee (usually between \$20 and \$25), companies are offering such benefits as the latest version of the program, the software's documentation, technical support, and more. And it's working.

More than 5,000 bootleggers seized the moment to own up when XTree Company offered a 120-day SAFE (Software Amnesty For Everyone) drive last year. The repenters paid \$20 to become registered, manual-carrying owners of *XTree*, a file-management utility that retails for \$70. They also became eligible for free technical support and upgrade information. *XyQuest*, publisher of *XyWrite*, and Unison World/Kyocera Union, makers of *PrintMaster Plus*, followed suit, reaping similar successes.

Although some small and midsize companies, such as Popular Programs, which produces a collection of desktop utilities similar to Borland's *SideKick*, are enthusiastic about software amnesty, it is unclear whether the trend will catch on industry-wide. A Microsoft spokesperson, for example, said that while the company endorsed such programs, it currently had no plans to foster one of its own.

If you or someone you know has copies of illegal software, you can call the publisher to ask about amnesty. And if you wish to report a pirate, you can call SPA's Piracy Hotline at (800) 388-7478.

—BRIANNA POLITZER

Hotels and High-Tech Travelers

Many hotels advertise special services for the business traveler, but if you travel with a modem-equipped laptop or a portable fax machine, you may not get the accommodations you expect.

That's the finding of a HOME-OFFICE COMPUTING survey of six major national hotel chains—Hilton, Sheraton, Quality International, Best Western, Holiday Inns, and Red Roof Inns. Of the six, only the budget-priced Red Roof Inns has equipped a substantial percentage of the rooms in each of its 204 motels with modular jacks for easy modem or fax connection. The Business King rooms have larger desks, and the phone lines bypass the switchboard, eliminating noise that can knock faxes off line or garble data fed via modem.

Although each of the other chains does put modular jacks in its newer rooms (those less than three years old), reservations clerks at the toll-free numbers had no idea which of their franchisees provide such facilities. Nor could they say for sure whether or not the computer- and fax-equipped business centers at the larger hotels allow guests to plug in their modems. The only way to find out if a hotel can put you in a modem-ready room is to call the hotel.

What can you do when you need a modular jack and the phone is hard wired? You can try a trick invented years ago by radio newsmen who had to send their stories across phone lines. Buy a cord with a modular phone jack on one end and bare wires on the other. Solder alligator clips onto the bare red and green leads. Unscrew the plate that covers the phone outlet, clip the alligators onto the red and green wires in the outlet, and insert the modular plug into your computer or fax machine. Then pray that there's no switchboard interference. Also keep in mind that hotels may not be too keen on this method.

"I carry a suitcase full of cables and screwdrivers myself," admits Lee Kriske, technical consultant for telecommunications at Hilton Hotels Corporation's headquarters

in Beverly Hills, California. "I have to analyze our hotels' phone-system needs and often jury-rig the lines to send my data back to the main office."

By far, the leader in hotel computer ser-



Mark Lambourne's hotel rooms cater to the business traveler with high-tech needs.

vice is the newly renovated, 20-room Nob Hill Lambourne in San Francisco. According to owner-operator Mark Lambourne, each of the rooms is equipped with a fax machine, a direct fax line that bypasses the switchboard, and an IBM PS/2 Model 30/286 loaded with *Lotus 1-2-3* and *WordPerfect 5.0*. And for a minimal charge, you can rent a modem. The price per room is \$175 a night.

"I got the idea a year ago when I was staying at a hotel," says Lambourne. "The hotel delivered someone else's fax to my room, and I didn't receive my own fax. I realized that business travelers often need fax machines and modems in their rooms."

Lambourne, a 28-year-old former Londoner, says he is considering opening similar hotels in New York City and Los Angeles. Eventually he hopes to own a national chain specializing in personalized service to business people who want to continue working up to capacity while on the road.

—JERRY CHESLOW

Tell Us All About It

Up Front is looking for anecdotes and humorous stories about doing business with computers and other technology. If you recall an embarrassing situation with a client, receive a funny fax, or hear a brilliant voice mail message, for example, tell us

about it in 200 words or less. We'll pay \$25 for every submission we publish. We reserve the right to edit for style, length, and clarity. Write to Up Front Editor, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003.



If you're one of the millions of people who use PCs to conduct business from the home, Hayes has some very important news for you.

The new Hayes PERSONAL MODEM 2400plus™. It's made especially for home business use. And it comes in versions for both IBM® and Macintosh® users.

Both plug into standard wall outlets. Both come with their PC and telephone cables attached. And both come with their own powerful communica-

tions software. So they're menu-driven, have help-screens and a directory for storing the numbers you call most.

These modems are perfect for doing business at home. But they're also great for accessing personal information services. Or local electronic bulletin boards.

And they're very affordable.

Plus, they're backed by the best name in the business. Hayes.

We're making it our business to make yours a lot easier to live with.

Hayes Our technology has the computer world talking. More than ever.

Now the leader in PC communications has a modem package for the busiest offices in America.



Answers to Readers' Questions

BY STEVEN C. M. CHEN

DISKS DON'T MINGLE

Q. My friend has a Brother WP 650 word processor with a 3.5-inch floppy-disk drive. She insists that it's possible to exchange disks and files with my Tandy 1000. Is she right?

LOUIS C. WEBER
Clayton, New Jersey

A. No. The only similarity between your computer and her word processor is that both use the same size floppy disks. The Brother WP 650's 3.5-inch disk can only store 120K because it is single sided, single density (SSSD); the Tandy 1000's 3.5-inch disk can store up to 720K because it is double sided, double density (DSDD). You can format a 720K disk to work with the Brother WP 650, but formatting a 120K disk for the Tandy is not recommended. Once disks are formatted for the Brother WP 650 or the Tandy 1000, they are no longer compatible with each other.

RESOLUTION VS. DOT PITCH

Q. I'm in the process of buying a monitor and can't decide between a regular VGA color monitor and a multifrequency monitor. What's more important, a small dot pitch or high resolution?

RONALD E. MILLER
Melbourne, Florida

A. Dot pitch refers to the space between two dots on the screen—the smaller the number the sharper the image. Resolution refers to the number of dots (horizontally and vertically) on the screen—the more the better. Both factors are important, but resolution is more important than dot pitch as long as the dot pitch is no more than 0.31 mm. If a monitor's dot pitch is larger than this, the display appears dotty.

The display standard is gradually moving away from VGA toward IBM's 8514A (with a resolution of 1,024 by 768), so you may want to consider a multifrequency monitor that supports 8514A and upgrade your display card later. These monitors are about the same price as a SuperVGA (800-by-600) monitor. Sony and Seiko offer such monitors with dot pitches as low as 0.26 mm.

Is high resolution worth the higher cost? Yes—even if you use only one program that supports it. With a program like *Ventura Publisher*, for example, you see 56 percent more information on the screen with an 800-by-600 resolution than you would with stan-

dard VGA (640-by-480). Higher resolution can increase your productivity and even eliminate the need for an expensive desktop-publishing monitor.

TRY A TRACK BALL

Q. I'm trying to choose between a mouse and a track ball. Which is better?

BARBARA V. REBARD
Glendale, California

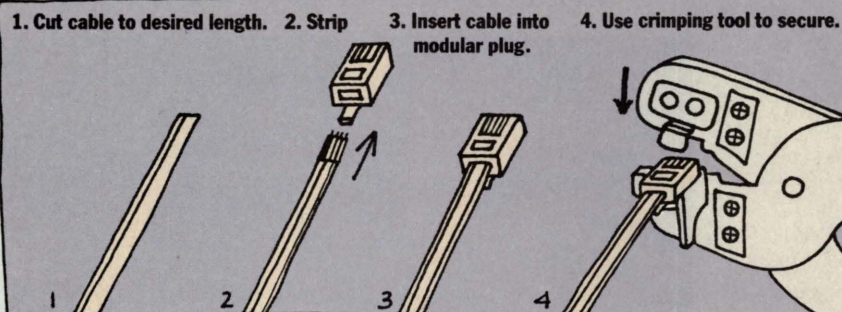
A. A difficult call. A mouse is usually easier to get used to, but a track ball requires less desk space. Most track balls are designed with three or four buttons surrounding a rotating ball, and they can be awkward if you have large hands. However, Logitech's TrackMan Stationary Mouse (\$139–\$149) is designed to fit more comfortably under your

hand—provided you are right-handed. The best way to choose is to try different track balls on for size before making a purchase.

\$ WE'LL PAY FOR YOUR PROBLEMS \$

If you have technical questions or computer ailments that need diagnosis, our technical staff will try to help you out—and we'll pay you \$25 if we publish your letter in Clinic. Although we cannot answer each letter personally, this column will deal with frequently asked questions and common problems. We reserve the right to edit the letters for clarity and length. Please include your name, address, and phone number with all correspondence. Send your letters to Clinic, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. ■

HELPFUL HINT: MAKE YOUR OWN MODULAR CORDS



Cords that come with phone equipment are never the right length. They're either too long and get knotted up behind your modem or too short to reach from one room to the next if you walk while you talk. That problem is easily and inexpensively remedied with modular cords you can make yourself.

For less than \$30 you can get the tools and materials to make several custom-measured modular cords. The only special tool you need is a crimping tool, which costs about \$10. Modular plugs (you need two to make one cord) cost about 20¢ to 30¢ each, and 4-conductor modular cable costs between 4¢ and 15¢ per foot, depending on the quantity you purchase. Your local Radio Shack or hardware store should have all the supplies you need. Altex Electronics, (512) 349-8795 or (800) 531-5369, is another source of cable supplies.

All you have to do is cut the cable to

the desired length with a wire cutter and strip the end with a crimping tool. (See diagram.) Insert the stripped cable into the plastic modular connector so that the metal pins are on top and the cable's wires run from black on the left to yellow on the right. Secure the cable with a quick squeeze of the crimping tool. Do this on both ends of the cable and you're finished.

With practice, you can make a cord in less than a minute.

SEND US YOUR HELPFUL HINTS

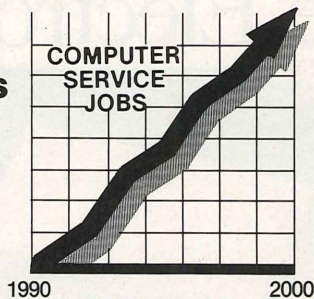
If you've discovered a clever trick, tip, or gadget that saves you time and/or money, why not let other HOME-OFFICE COMPUTING readers in on your secret? Send a description of your customized creation to Helpful Hints Editor, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. We'll pay \$25 for every hint we publish.

STEVEN C. M. CHEN is managing technical editor at HOME-OFFICE COMPUTING.

5 sure steps to a fast start as a high-paid computer service technician

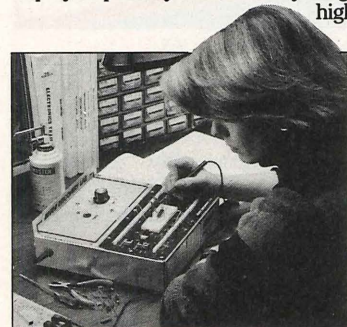
1. Choose training that's right for today's good jobs

Jobs for computer service technicians will almost double in the next 10 years, according to the latest Department of Labor projections. For you, that means unlimited opportunities for advancement, a new career, or even a computer service business of your own.



But to succeed in computer service today, you need training—complete, practical training that gives you the confidence to service any brand of computer. You need NRI training.

Only NRI—the leader in career-building, at-home electronics training for more than 75 years—gives you practical knowledge, hands-on skill, and real-world experience with a powerful AT-compatible computer you keep. Only NRI starts you with the basics, then builds your knowledge step by step until you have everything you need for a fast start as a high-paid computer service technician.



2. Go beyond "book learning" to get true hands-on experience

NRI knows you learn better by doing. So NRI training works overtime to give you that invaluable practical experience.

You first read about the subject, studying diagrams, schematics, and photos that make the subject even clearer. Then you do. You build, examine, remove, test, repair, replace. You discover for yourself the feel of the real thing, the confidence gained only with experience.

3. Get inside a powerful computer system

If you really want to get ahead in computer service, you have to get inside a state-of-the-art computer system. That's why NRI includes the powerful new West Coast 1010 ES computer as the centerpiece of your hands-on training.

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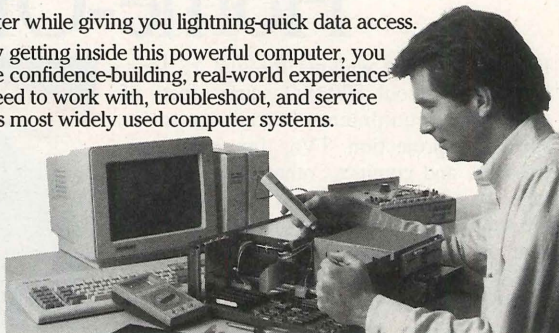
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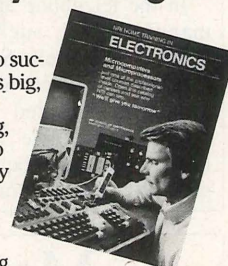


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BY MARIE ALVICH

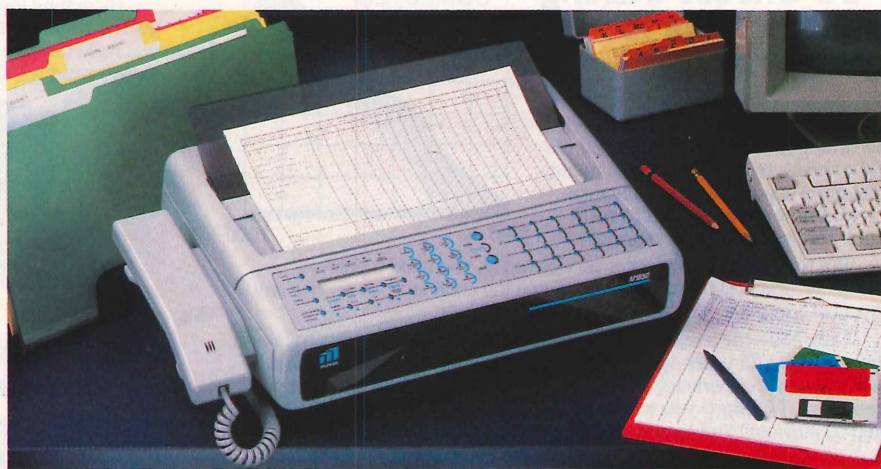
The Latest Home-Office Electronics

Imagine yourself walking through 18 football fields (about 800,000 square feet) of electronic equipment—stereo systems, speakers, projection TVs, fax machines, watches, and countless other gadgets. Outrageous, you say? Maybe to you, but not to the thousands of people who do it twice a year at the Consumer Electronics Show (CES). Manufacturers and exhibitors gather at CES to show off their fresh crop of goods to prospective buyers, dealers, and, of course, the media. This incredible display of electronics draws more than 70,000 people from all over the world.

Although no new technologies or earth-shattering products were introduced at Winter CES (held annually in Las Vegas), we uncovered some new products that could be a boon to your home office.

Fax machines dominated the home-office scene. Sharp, Toshiba, Murata, Ricoh, Brother, and Canon rounded out their product lines by adding everything from sophisticated feature-packed machines to low-volume, easy-to-use faxes. Most of the new fax machines incorporate automatic fax/phone switches (see "Avoiding the Cost of a Second Line" in this issue), automatic paper cutters and document feeders, and built-in answering machines—useful additions to the home office or small business.

In the telephone arena, major telephone manufacturers such as Code-a-Phone, Northwestern Bell, Southwestern Bell, and Panasonic showed off new cordless models—some coupled with answering machines, some able to handle two phone lines, and some equipped with two dial pads. But the two most interesting phones



Murata's new M1850 was one of the many fax machines introduced at Winter CES.

displayed at the show were from Northern Telecom and PhoneMate. The Maestro, from Northern Telecom, is like a door with a peephole—it lets you see the number of the person calling before you answer it. PhoneMate's ADAM (All Digital Answering Machine) is a revolutionary new answering machine that records messages digitally—it doesn't use cassette tapes.

Cellular telephones will outsell answering machines, feature phones, and cordless phones in 1990, according to the Electronic Industries Association. They were a big hit at the show; there was a lot of dealer and buyer interest in the booths of NEC, Motorola, Panasonic, OKI telcom, Audiovox, and NovAtel, which were set up in a special area in the main exhibition hall. Some of these companies introduced new models, while others touted oldies but goodies.

Personal copiers were hard to find at Winter CES. Canon was the only company with introductions: Its PC-1 and PC-2 (\$795 and \$895) are "instant-ready" models, requiring no warm-up time before use. The PC-1 and PC-2 will replace Canon's PC-3 II and PC-5 II.

New computer systems were also scarce. While many computer manufacturers introduced new lines at COMDEX (another trade show), Emerson, Olivetti, and Laser Computer waited for Winter CES, where they revealed two new systems apiece.

New hand-held electronic organizers were also introduced. Laser Computer showed its revamped electronic organizer/portable computer, the new and improved PC4; Sharp displayed its latest 64K Wizard; and Casio announced a new BOSS that incorporates memory-expansion cards.

Meet ADAM, PhoneMate's Newest Arrival

ADAM, PhoneMate's latest and greatest creation, is a telephone answering machine that digitally records messages. This \$299 All Digital Answering Machine electronically stores incoming and outgoing messages in its dynamic random access memory (DRAM). You can immediately (with the touch of a button) access either incoming or outgoing messages without waiting for a tape to rewind. And you can retrieve a particular message without listening to all the others.

What I found most fascinating was one of ADAM's more advanced features—its ability



to speed up and slow down messages (up to 30 percent faster or slower). You can scan messages quickly or replay them more slowly to take notes.

ADAM's menu-driven display skillfully guided me through all of the machine's functions. Voice prompts walk you through remote operation. Other sophisticated features include message transfer, to forward messages to another telephone, and handset message retrieval, for private message playback through the handset.

Keep an eye out for a full review of PhoneMate's ADAM in an upcoming issue.

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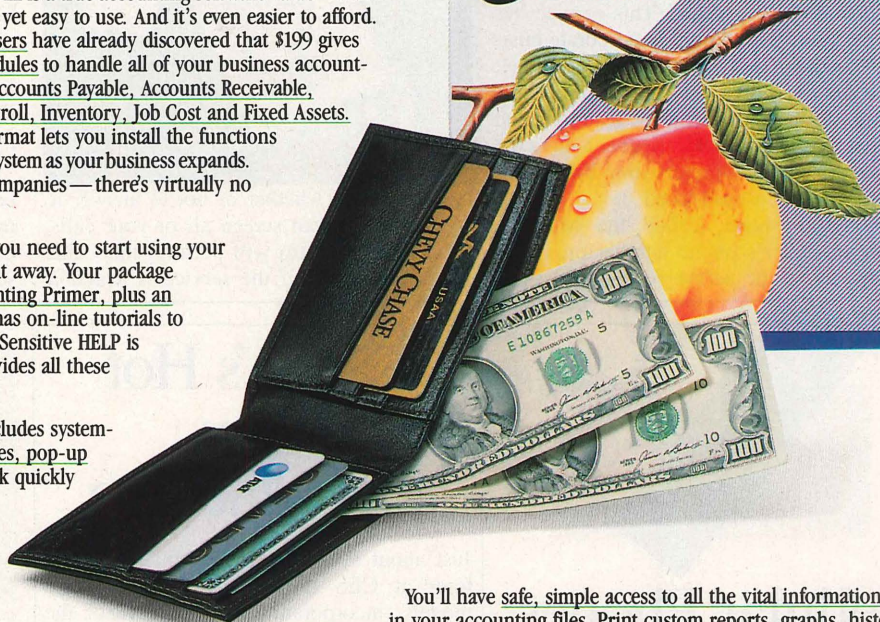
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First Caller ID Phone for the Home

Wouldn't you love to be able to know who's calling you before you even pick up the phone? At CES, I got to preview Northern Telecom's intriguing new telephone that supports Caller ID, a local phone service option that does just that. This service has been previously used only in corporate business situations, not in residential settings. Consequently, Caller ID has sparked debate in some states as to whether it is an invasion of privacy; and legislation to give callers the right to block their numbers from being seen has recently been introduced.

The \$136 phone, called the Maestro, shows the caller's phone number on a special display so the person receiving the call



can determine whether or not to answer it. In effect, you can screen all of your calls. Of course, Maestro will perform the Caller ID function only if the service is available

from your local phone company and you are a subscriber to the service (which costs approximately \$2 to \$4 per month). In addition to Caller ID, Maestro gives you one-touch access to other services, such as call block and call trace.

Maestro puts a lot of control at your fingertips. I liked the phone's convenient single-button access for redialing the last number that called, reviewing the last 15 calls received, and tracing a call.

In mid-1990, Northern Telecom plans to begin testing a phone that will display the name of the caller as well as the phone number. I wonder what controversy this will set off.



Cellular Phones: No Longer Status Symbols

Cellular phones started out as status symbols; today they're recognized as productivity tools for traveling professionals. Now that the glamour effect has worn off and the prices of these phones are based on value, NEC and other companies are adding more and more features to their newer models.

At the show, NEC introduced a hand-held cellular phone that weighs a mere 14 ounces. The P300 (\$1,795) is one of the lightest hand-held units on the market today, next to Motorola's 10.7-ounce MicroTAC.

Personally, I liked the P300's flip-up antenna—it makes the unit easy to carry and store. The 30-character, backlit LCD that displays names and phone numbers is also a handy feature.

For greater flexibility, mobile adapters are available so you can mount the P300 in your car. When installed, the P300 can be equipped with a hands-free answering option so you can keep your eyes on the road and your hands on the wheel.

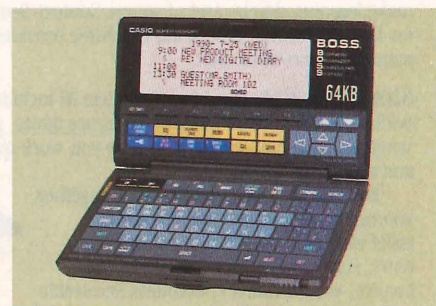
Another NEC product, the Voice Activated Dialer, makes using a car phone more convenient. It allows NEC's mobile M4700 unit to automatically dial up to 20 numbers with a one-word voice command. What's next, NEC?

Canon's Hot New Fax Machine

Just about every major facsimile manufacturer at CES introduced "home office" models, incorporating one or more of the following features: an answering system, a fax/phone switch, an automatic paper cutter, and an automatic document feeder. But Canon had the most interesting fax unit of all—the FaxPhone 15CD (\$1,195).

The 15CD's unique feature is a removable data bank that can be programmed with up to 150 fax numbers and carried in your shirt pocket—it looks just like a credit-card-size calculator. Here's how it works: If several people use the same fax machine and they all send documents to different people, each person can have his or her most frequently used fax (or telephone) numbers programmed into his or her own personal data bank (\$49 each). Each data bank also has a calendar capable of storing approximately 150 appointments, and a full-function calculator to boot.

Look for a full review of this Canon fax machine in an upcoming issue.



Casio's Answer To the Wizard

Casio has finally done it. It has introduced a BOSS (Business Organizer Scheduling System) that can directly compete with Sharp's Wizard. Don't get me wrong, Casio's other hand-held electronic organizers have many of the same features as the Wizard—except for the special plug-in memory (IC) cards. Now the new SF-9000 Executive BOSS incorporates similar cards.

The four cards currently available (priced between \$80 and \$130) include a 64K memory-expansion card, an electronic dictionary, a financial and legal spelling checker, and a medical spelling checker. I appreciate the SF-9000's tilt-and-lock display—it makes viewing much easier.

Like a few of the other popular BOSS models, the SF-9000 offers a QWERTY keyboard, 64K of memory (expandable to 128K), a wide 32-character-by-6-line display, a business card library, a phone directory, a memo function, a two-month calendar display with schedule and daily alarms, and the time for 219 cities. It has the ability to transfer information to and from other BOSS units as well as any IBM or Macintosh computer (using a special cable).

At \$300, Casio's SF-9000 is the Wizard's number one competitor. ■

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CIRCLE READER SERVICE 55

Get the Words Right or You'll Lose Business, Money, and Face

BY PHILIP BISHOP

Practical Proofreading For Everyone

I learned about the importance of proofreading the hard way. I produced a brochure for my desktop-publishing business extolling my virtues as, among other things, an editor—and the piece got into print with the word *editing* spelled *editng*.

How could this happen? I ran the copy through a spelling-checker program and the word wasn't flagged; I must have lopped the "i" off while I was tinkering with the layout. Whatever caused it, an error sneaked in, in large part because I was the only one to proofread the document. A client pointed out the mistake as I was pitching a project to him for some business. Fortunately we had worked together before; I was able to laugh it off, and he was quick to forgive. I might have been a lot less lucky.

IT CAN HAPPEN TO YOU

You may think it's impossible that you would make such a goof, but the odds in favor of an error making it out of your hands and into the world grow greater with each word written.

And make no mistake, such mistakes take a toll. The cost could be as relatively painless as an embarrassing phone call to explain what you really meant to say if you dropped the *l* when writing about a company's "public affairs department." Or it could be footing the bill for reprinting costs, as in my case. It could also cost you the confidence, if not the actual business, of clients.

We all make mistakes, and no matter how much work you put into proofreading, the occasional mistake will still slip through. But if you learn some new skills, and how to use some new software, most won't.

THE FOUR BASIC STEPS

Proofreading can be summed up in four words: compare, detect, mark, correct.

1. Proofreading begins with comparison,

PHILIP BISHOP runs a desktop-publishing service from his home in Narragansett, Rhode Island.

Proofreader's Marks

<p> h or 7 delete; take h out ^o close up; print as ^one word h delete and close up [^] or ^h caret; insert ^{here} (something) [#] insert space ^{stet} let marked text stand as set ^{tr} transpose; change ^{order} (the) [/] used to separate two or more marks and often as a concluding stroke at the end of an insertion [[] []] set farther to the left []] [[] set farther to the right ⁼ straighten alignment straighten or align ^x imperfect or broken character [□] indent or insert em quad space [¶] begin a new paragraph ^{SP} spell out (set ⁵ lbs. as five pounds) </p>	<p> ^{cap} set in <u>capitals</u> (CAPITALS) ^{sm cap} or ^{S.C.} set in <u>small capitals</u> (CAPITALS) ^{lc} set in <u>lowercase</u> (lowercase) ^{ital} set in <u>italic</u> (italic) ^{rom} set in <u>roman</u> (roman) ^{bf} set in <u>boldface</u> (boldface) ^{-/} or [~] or ^{/H/} hyphen ^{1/} or ^{en} or ^{/N/} en dash (1965-72) ^{1/} or ^{em} or ^{/M/} em — or long — dash [,] comma ['] apostrophe [.] period [;] or ^{j/} semicolon [:] or [⋮] colon [“] or [”] or [⋮] quotation marks ^(/) parentheses ^[/] brackets </p>
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A selection of the most commonly used proofreader's marks.

usually of a newer (or *live*) version of a document with an older (or *dead*) version.

2. As the live version is read—ideally out loud, including every punctuation mark and all capitalization—errors are detected.

3. Said errors are then marked on the live version. These marks look like hieroglyphics (see figure), but they're easy to learn.

4. Changes and corrections are made according to the marked copy.

But what if an older version doesn't exist, as may happen with electronically produced documents? Here proofreading begins with step two, detection (technically called *dry proofreading*). I suspect a lot of proofreading is of this nature, and—while it may be necessary at times—it opens a window of opportunity for gremlin typos to creep in. While shorter documents, such as letters, can get by without the comparison step, longer documents often need it. Even short pieces, when important, can benefit from comparison.

HOW TO MAKE YOUR MARK

Comparison and detection in the proofreading process take a special sharpness of

eye. For its part, the marking step requires special symbols called, not surprisingly, *proofreader's marks*. Of course, you don't need to learn these marks if you're proofreading only for yourself and you have a system that already works for you. But if you don't, or if you ever share and revise documents with clients or partners, then learning the simple, standardized language of proofreading is worth your small investment of time.

Peggy Smith knows a lot about these mysterious marks. Smith is the author of *Simplified Proofreading* and *Mark My Words*. I recommend both books—the former for its quickly mastered modified proofreading system, the latter for its in-depth instruction in the complete methods of proofreading, including tricks of the trade. Simplified proofreading can be learned easily in a day, although the complete set of marks doesn't take much more time to master. Whichever route you take, the important things are that errors (and their attendant corrections) are marked and that a standard set of marks is used throughout the proofreading process.

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Traditionally, to proofread meant to compare, detect, mark, and correct copy set by a typesetter. This copy was usually set single-spaced and thus left very little room between lines for making corrections. Proofreader's marks evolved from this situation: Corrections are made in the margins, with only a mark made in the text to show where the change is being made.

FIVE TIPS FOR SUCCESS

Practice, as the saying goes, makes perfect. This has been the case for Judith A. Wunderlich who, while she wouldn't admit to being perfect, has learned a thing or two about the typographic eye. Wunderlich is the owner of The Wunderlich Graphics Agency in Schaumburg, Illinois.

Look at everything. "Catching errors has never been a problem for me—in fact, I sometimes have a hard time reading newspapers because my eyes seem to jump to the inevitable errors instead of concentrating on the content."

She continues: "When I proof work for my clients, I must proof not only for content and word for word, but also for typographical style, positioning, and design."

Focus on words and form. Some people, like Wunderlich, have a natural facility for not concentrating on content when they proofread. You may not be blessed with such a knack, but with practice you can definitely become better. Perhaps more important, you will learn to give proofreading its due place when producing a document.

More than one must read. Another important lesson is the one I needed to learn: Avoid being the only person to proofread copy of which you are the author. Why? Because, to coin a phrase, familiarity breeds myopia. In other words, you see what you expect to see and not what you should see. If at all possible, have someone else proofread your work. Ask a spouse or coworker for help (old-time proofreading consisted of one person, called the copyholder, reading the dead copy while another person made corrections in the live copy).

Farm out work. Another option is to subcontract the work. Perhaps you can find a proofreading service or a proofreader in your area who wants some extra work. Or you could try contacting a newspaper and see if they know of a retired editor who might help. After my experiences with proof goofs, I am going the spouse route as well as looking for outside help.

Share responsibility. If you're in a business that produces documents for others—such as advertising, desktop publishing, or public relations—you may also want to instruct your clients that they're responsible for the final proofreading before any piece goes to print. This will help spread the load.

HOW SOFTWARE HELPS

As noted earlier, Judith Wunderlich isn't perfect. She confessed that in a brochure for a Catholic group she gave *God* an extra *o*. Another sin she was privy to, though didn't commit, was a sentence that read "insure your souse for only \$5.00 a month!" As you might imagine, this isn't exactly what the copywriter had intended to write, although the sentence makes perfectly good sense—especially to computer programs that check spelling.

When run through a spelling checker, *souse* came out A-OK. It's possible to put too much faith in what a spelling checker can really do—not one of them could be relied upon to find a spouse who's turned into a souse.

On the other hand, proofreading can ordinarily benefit from style and grammar checkers, especially those programs that offer tips on usage and punctuation as well as advice on grammar and style. The rap on all these programs when viewed as aids to proofreading, apart from their inability to catch certain classes of spelling and punctuation errors, is that they tend to be weighted too heavily on the side of improving the writing—a worthwhile cause, to be sure, but not always a direct help in proofreading.

Still, the bottom line on grammar and style checkers is this: Despite their shortcomings as proofreading machines, any one of them is to be preferred over a spelling checker alone. Just don't take their word on everything. ■

PROOFREADING RESOURCES

MS-DOS

Correct Grammar v1.1 (\$99). Lifetree Software, (415) 541-7864

Grammatik IV v1.0 (\$99). Reference Software Int'l, (415) 541-0222 or (800) 872-9933

PC Proof v1.1 (\$159). Lexpertise US, Inc., (801) 350-9100 or (800) 354-5656

RightWriter v3.1 (\$95). RightSoft, Inc., (813) 923-0233

Macintosh

Correct Grammar v1.0 (\$99). Lifetree Software, (415) 541-7864

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MacProof v3.2.1 (\$195). Lexpertise US, Inc., (801) 350-9100 or (800) 354-5656

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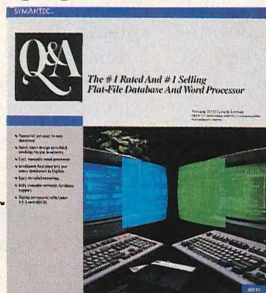
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CIRCLE READER SERVICE 56

Nine Questions to Ask a Professional Printer

BY STEVE MORGENSTERN



I love the smell of printer's ink in the morning. It smells like . . . publishing.

All right, maybe that lacks the drama of Robert Duvall's battlefield ode to napalm in *Apocalypse Now*, but the smell of printer's ink really does bring on a distinctive set of impressions. It suggests completion of a project—the advance to the print shop to deliver mechanicals signals that the battle to meet a deadline is almost over.

It also suggests tradition. As much as the method of preparing a publication for the printing press has changed since I edited my high school newspaper in the sixties, that smell is still the same, and so are many of the decisions and procedures involved.

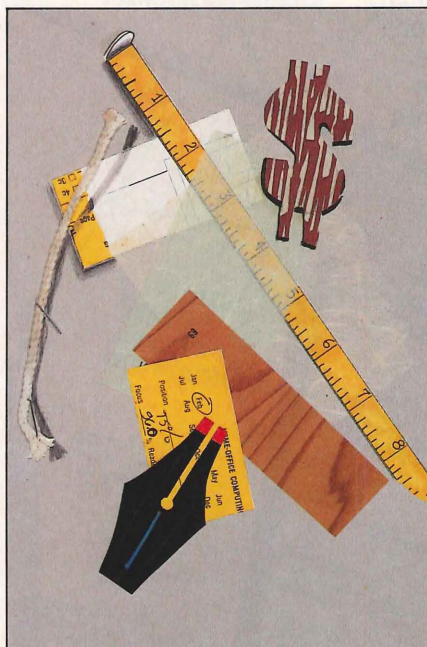
The time to get your first whiff of printer's ink isn't once you have the completed mechanicals under your arm, however. If you don't confer with a professional printer early in the process of planning your publication, the results could be . . . well, apocalyptic.

THE RIGHT QUESTIONS

Printing may come at the tail end of your desktop-publishing project, but it very much is the tail that wags the dog. The economics and technicalities of the printing process must be factored in at the earliest stages—that means before you design a publication or even commit to undertaking a project. By first understanding the issues involved in getting ink on paper, you can determine whether or not a project is economically viable and what design decisions can save you time, money, and hassles.

To discuss these issues realistically with a commercial printer, you'll have to provide certain information about your publication and know the right questions to ask.

1. What's the unit cost? When deciding how many copies you'll need, remember that a disproportionate share of printing costs comes from setting up your publication on the press. Once the presses are ready to roll for a 5,000-copy print run, for example, the cost of an extra thousand copies will be far less than one-fifth of the original tab. By the same token, if you try to go back for



an additional thousand copies after the job has run, expect to pay the full cost of readying the presses to run your job again.

2. What size? Your goal here is to use the paper you buy and your print shop's press capabilities with maximum efficiency. While you should start out with a general idea of the final size you want, it's a good idea to maintain flexibility and ask the printer for precise measurements to minimize wasted paper.

Not long ago, I prepared mechanicals for a magazine based on specifications (specs) provided by the client. With mechanicals ready to ship, I discovered that the client hadn't conferred with the printer before determining the specs. To print the job according to those original specs would have required a nonstandard sheet of paper, which would then have had to be trimmed down—meaning lots of wasted paper. When we shaved the specs by a quarter of an inch on one side and an eighth of an inch on the other, paper costs tumbled dramatically. We made the changes to the mechanicals, grumbling all the while. Don't fall into the same trap—determine final page sizes after you talk with your printer and before you make mechanicals.

3. How many pages? Similarly, there are efficient and inefficient page counts. When designing a booklet or newsletter, multiples

of eight-page units are usually the most cost-effective formats for both printing and binding. Adding four pages isn't too problematic, but adding six pages is very inefficient (you're usually better off making an extra eight-page section and leaving the last two pages blank). As you move into book-length publications, such as manuals, and larger runs on high-speed presses, planning in 16- and 32-page units is the most economical strategy.

4. Which paper is best? The kind of paper you use conveys a message as surely as the words and pictures you print on it. A mind-boggling variety of papers are available. The best procedure is to determine the effect you are trying to achieve and ask the printer to show you samples.

For example, you know the way ink printed on one side of a sheet sometimes shows through on the other side? The degree of show-through is referred to as the paper's *opacity*. Generally, paper with higher opacity is thicker and more expensive. Try to look at a printed sample of the paper you're considering to determine whether its opacity will be adequate for your needs. If you can't find a printed sheet, place a blank sheet over a printed page and judge the show-through that way.

The weight of a paper may not be readily apparent if you're handling single sheets, so try to examine a sample with about the same number of pages you'll be printing. Keep mailing requirements in mind too; check the costs of different mailing weights in different postal classes.

If you expect people to write on the printed page, try it yourself with a sample. I still remember with horror a product order form in a magazine I used to edit. It stubbornly resisted all attempts to write on it with pencils or ballpoint pens, and even a felt-tip marker smeared if you didn't let the ink dry completely.

Finally, ask the printer if the weight and finish of the paper are appropriate for the kind of text and illustrations you'll be printing. This is especially important if you are planning to use photographs or fine-line drawings in your publication.

5. How much does color cost? The colors you use for type and illustrations are a major expense in any printing job. Full-color photographs and illustrations require *four-color printing*, a process in which the images are reproduced by combining four primary col-

STEVE MORGENSTERN is a contributing editor for HOME-OFFICE COMPUTING.

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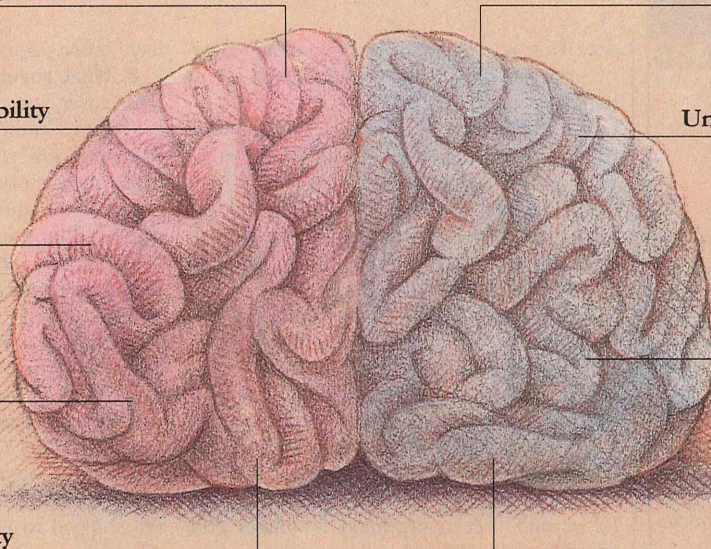
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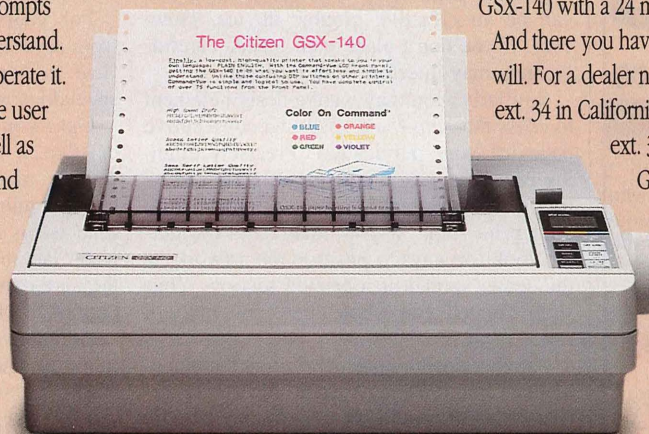
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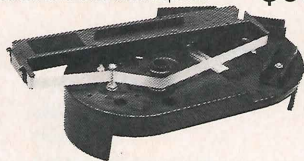
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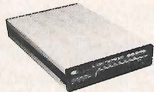
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CIRCLE READER SERVICE 37

DESKTOP PUBLISHING

ors. This is a demanding, specialized form of printing, and many smaller shops don't handle it.

In the February 1990 issue, I discussed a more economical way to add color to a publication: using colored inks to highlight design elements. The cost of adding a single spot color, or several additional colors, will depend on the type of press to be used in printing the job.

Also consider a colorless "color"—varnish. In printing, varnish is considered another kind of ink and is priced accordingly. Often used in brochures, a glossy varnish can add shine to your printed piece, while a dull varnish can simply help make it more durable. When my company created a folder for one client, we used glossy stock for the folder and then overprinted it with a dull varnish, dropping out a large rendition of the company logo. The effect was subtle and classy.

6. What about photos and illustrations?

Images with areas of solid gray or color require several steps from the print shop. (Illustrations composed only of black lines, which are pasted down on your mechanical, can be shot along with the type and do not cost extra.)

Each black-and-white photograph must be shot separately by the print shop with a special camera to create a reproduction film, or *halftone*. For each color photograph the printer must create a *color separation*—four separate films to allow four-color-process reproduction. In either case, the films must then be *stripped in* to position with a separate film containing all the type elements of your publication. You will pay for each photograph based on its size, and also pay for the stripping process.

7. Are there other design elements to consider? Certain design features can create problems if you don't discuss them up front with your printer. For example, you may want to run a photograph right out to the edge of a page. This is called a *bleed* and can be an effective graphic device. However, if you don't place your bleeds carefully, they may interfere with printing.

Similarly, you may want a design element to *cross the gutter* and span two consecutive pages of your publication. Precisely aligning pages to make this work properly can be tricky—you should definitely discuss it with your print shop. If you must cross the gutter, look for ways to position the artwork on the center spread of a printed section. Your shop can tell you where these spreads will fall.

Another design consideration is the placement of color. Depending on the configuration of pages on the press, you may be able to save money by printing only certain sections of your publication in color yet still

have color pages interspersed throughout.

8. What about folding and binding costs?

The closer you conform to the print shop's procedures in these areas, the more economical your job will be. For instance, some high-volume printing presses will fold the paper automatically as it comes off the press, as long as you are using a standard fold. At the other extreme, pages can be folded by hand, at a high cost.

The binding technique to be used will also affect your design and mechanical preparation—some bindings require you to leave extra room in the gutter.

9. When and where do you need it? Do you want the print shop to bundle your printed pieces into precounted groups? Do you need pages collated? Do you want the finished job shipped to you, or will you pick it up? All of these will affect your estimate.

The tightness of deadline requirements can also have an impact on costs. Printers like to schedule their work flow to make the best use of their presses. If they can run two or more jobs in a row with the same size paper, it saves them time and effort. Similarly, it takes time to wash out the presses and add a nonstandard ink color—time that is saved if two consecutive jobs use the same color ink. If you have the luxury of flexible delivery requirements, you may be able to save some money by letting the printer run your job when it fits easily in the press schedule.

PUT IT ALL TOGETHER

Large publishing houses, advertising agencies, and other companies that purchase a lot of printing have production specialists who immerse themselves in the complexities of the printing business and make decisions accordingly. You and I don't have that luxury. Our printing specialist is the print shop, and one of the most important factors in getting satisfactory printing work is developing a relationship of trust and cooperation with that vital resource.

For your own peace of mind, get bids from several print shops on a given project. Bear in mind that each shop has its own specialties and its own equipment.

Once you have chosen a print shop, try to develop a friendly, ongoing relationship. Ask as many questions as necessary, but keep in mind that, like yours, the printer's time is his or her most valuable resource. Keep last-minute changes to a minimum—they are expensive and tend to make you an unpopular client.

And above all, pay your printer's bills on time. A small company that pays its bills within a month can receive more attention and service than a big corporation that makes the poor printer wait 90 days for payment. ■



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I used to worry about being audited. When it actually happened, boy was I nervous! Not because I'd done anything wrong, but because I knew I'd need very detailed records. So, I went into the audit armed with Quicken, both in reports and on my laptop. Sure enough, the IRS agent questioned every expense—every trip I took, every hotel room I stayed in. Thanks to Quicken, I responded to each inquiry quickly and easily. My accountant said that being so organized made

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Last-Minute Tax Return Tips

BY DAVID HALLERMAN

These Computerized Calculations Increase Accuracy and, Possibly, Refunds as They Help Plan Next Year's Taxes

It's tax time again, and I intend to fork over as little money as is legally possible to the Internal Revenue Service. I used to prepare my taxes solely with pencil, paper, and a calculator; but now I complete the job with a spreadsheet, which I use to check calculations, try several what-if scenarios, and plan next year's taxes.

Even if your tax return is more complicated than mine—say if you file a sole proprietor's Schedule C—you can use most of the same spreadsheet steps detailed below to polish off your tax return. Follow along with your own spreadsheet.

CALCULATING TAXES AUTOMATICALLY

Before I start on my tax return, I examine a photocopy of last year's return, which gives me an outline of what forms and

schedules—and what lines on those forms—I need to concern myself with. This year I have three IRS forms to complete: Form 1040; Schedule A, for itemized personal deductions; and Schedule B, for interest and dividends.

First, I take care of the easy parts of the 1040 using pencil and paper: name, address, Social Security numbers, filing status, and exemptions. Then I set up my *Excel* spreadsheet (see Figure 2); my actual spreadsheet contains two more columns for our 1989 and 1990 state returns, but I've reduced it here for illustrative purposes.

Step 1. With Form 1040 and Schedule A at my side, I fill in columns A and B only for those line items I need, ignoring the rest. I place line numbers in column A with a close-parenthesis mark after each so that the spreadsheet sees them as words, not calculable figures. (If you're using *Lotus 1-2-3* or a compatible spreadsheet, precede each line number with a quotation mark for the same effect.) Then, I fill in column B with a short description, such as "Wages, salaries," pulled from the IRS form. While I could put both line number and description in the same cell, separating them makes the item descriptions line up flush left, which helps me scan the spreadsheet more easily.

Step 2. For each line item, I enter the appropriate figures and formulas into col-

umn C (I've made up the numbers in this article for the sakes of clarity and privacy). For instance, for Form 1040's line 7, I enter a simple formula ($=45000+35000$) into cell C4. (See Figure 1 for all the formulas behind the cells in Figure 2.) That formula's syntax is correct for *Excel* or *Microsoft Works*; if you use *1-2-3*, your formula would read: $+45000+35000$.

Although I could have added my family's two salaries before plugging in the numbers, I let the software do the work with a formula for three reasons: It's easier, it's bound to be accurate, and, most important, by seeing two numbers in the formula when I look at that cell later on, I'm reminded where the total came from. That may not be important when only two figures make up an item, but for a more complex figure—such as taxes paid, line 8 on Schedule A—it's a big help.

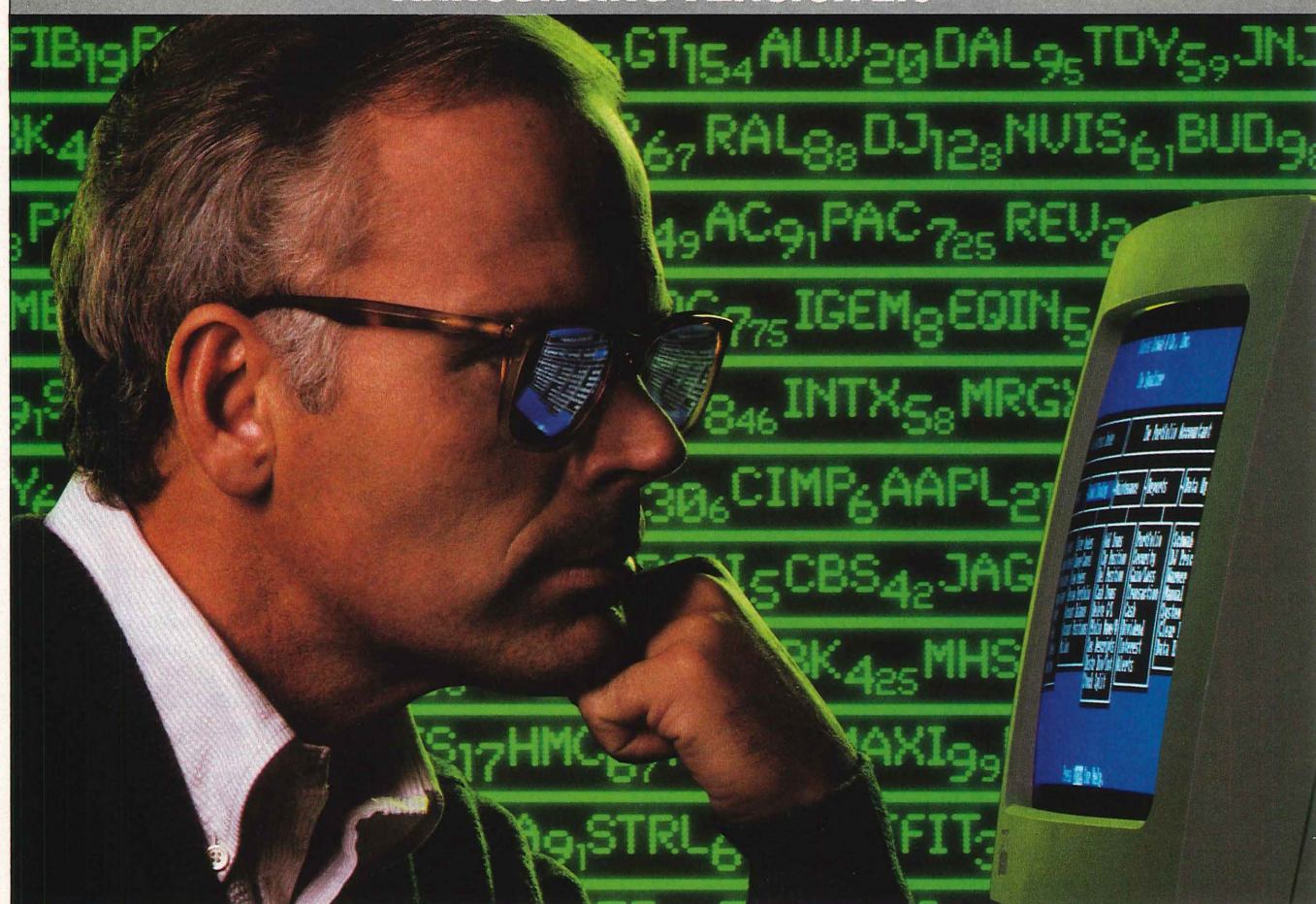
Similarly, I use the Form 1099s that I received from my bank and brokerage firm to set up one formula that adds up taxable interest income (cell C5) and another that totals dividend income (cell C6), which correspond to lines 8a and 9 on Form 1040. I'll have to enter these income figures later on Schedule B, but they're all I need now for my calculations.

Step 3. Up to now, my formulas have been basic addition. In order to calculate my

	A	B	C	D
1	Federal Income Taxes	1989—1990		
2				
3	Form 1040		1989	1990
4 7)		Wages, salaries	=45000+35000	=50000+40000
5 8a)	1	Taxable interest	=325+450+120+65+40	=C5
6 9)		Dividend income	=2100+350+50	=C6
7 10)		Taxable refund state taxes	=1500	=500
8 23)		Total income	=SUM(C4:C7)	=SUM(D4:D7)
9 25a)		IRA deduction	=2000	=C9
10 25b)		Spouse's IRA deduction	=2000	=C10
11 30)		Total adjustments	=SUM(C9:C10)	=SUM(D9:D10)
12 31)		Adjusted gross income	=C8-C11	=D8-D11
13 34)		Itemized deductions	=C24	=D24
14 36)		Exemptions	=2000*2	=2050*2
15 37)		Taxable income	=C12-C13-C14	=D12-D13-D14
16 38)		Tax owed	=IF(C15<=30950,C15*15%,30950*15%+(C15-30950)*28%)	=IF(D15<=30950,D15*15%,30950*15%+(D15-30950)*28%)
17 56)		Income tax withheld	=7135+995+6870	=375+250*26
18	=IF(C17-C16>0,"63","65")	=IF(C17-C16>0,"Refund","Owe!")	=IF(C17>C16,C17-C16,C16-C17)	=IF(D17>D16,D17-D16,D16-D17)
19				
20	Schedule A			
21 8)		Taxes paid	=2580+1290+145+130+960+395	=110+75*26
22 13)		Interest paid	=6700+1300+(300*20%)	=((650*12)*95%)+(300*12)*35%+(200*10%)
23 17)		Charitable expenses	=440	=400
24 26)		Total itemized deductions	=SUM(C21:C23)	=SUM(D21:D23)

Figure 1. Grab your spreadsheet and IRS forms and try these step-by-step tips that can help you prepare your tax return.

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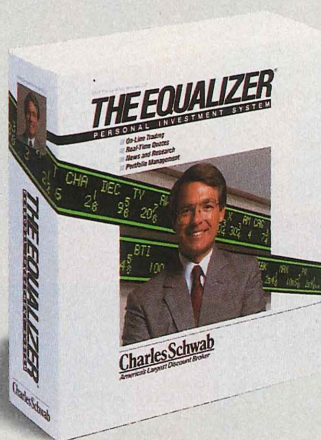


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family's total income (cell C8), however, I call on what's probably the most commonly used spreadsheet function: SUM. The SUM function totals a range of cells—which is much easier than adding them cell by cell and more convenient if I need to insert a new row into the range. In this case, only a small range of cells (C4 to C7) is needed to figure our total income, but SUM is even more useful when dealing with greater ranges. If you're using 1-2-3, your functions will begin with the at sign (@) instead of an equal sign; and the symbol for a range is two dots (..) instead of Excel's colon (:).

Step 4. Since we own our home and pay plenty of mortgage interest, I already knew that we had enough deductions to itemize. Below the Form 1040 section of my spreadsheet, I set up a little Schedule A section with only the total line items listed for deductions. So for taxes paid, interest paid, and charitable expenses, I create formulas that total my individual expenses. If you're self-employed, you might set up a similar section for Schedule C deductions.

Step 5. Finally, for line 26 of Schedule A, I again use the SUM function to total deductible expenses. The sum in cell C24 also appears in cell C13 of the Form 1040 section as itemized deductions. My two exemptions are multiplied by \$2,000 each (the

	A	B	C	D
1	Federal Income Taxes 1989—1990			
2				
3	Form 1040		1989	1990
4	7	Wages, salaries	80,000	90,000
5	8a	Taxable interest	1,000	1,000
6	9	Dividend income	2,500	2,500
7	10	Taxable refund state taxes	1,500	500
8	23	Total income	85,000	94,000
9	25a	IRA deduction	2,000	2,000
10	25b	Spouse's IRA deduction	2,000	2,000
11	30	Total adjustments	4,000	4,000
12	31	Adjusted gross income	81,000	90,000
13	34	Itemized deductions	14,000	13,900
14	35	Exemptions	4,000	4,100
15	37	Taxable income	63,000	72,000
16	38	Tax owed	13,617	16,137
17	56	Income tax withheld	15,000	16,250
18	63	Refund	1,384	113
19				
20	Schedule A			
21	8	Taxes paid	5,500	4,810
22	13	Interest paid	8,060	8,690
23	17	Charitable expenses	440	400
24	26	Total itemized deductions	14,000	13,900

Figure 2. Simple income-tax worksheet.

1989 figure) in cell C14. And taxable income is calculated by the simple formula in cell C15: adjusted gross income minus deductions minus exemptions.

Step 6. Now I need to calculate our tax liability. I could just go into the IRS tables and schedules and plug our specific liability figure into the spreadsheet. Yet if I enter a specific number for our tax liability, I can't try what-if scenarios that change our taxable

income without going back to the tables each time to calculate our new liability. Archaic! But constructing a formula gives me the flexibility that spreadsheets were invented for. I use the IF function in cell C16 to compute the tax as follows:

=IF(C15<= 30950,C15*15%,30950*15% + (C15-30950)*28%)

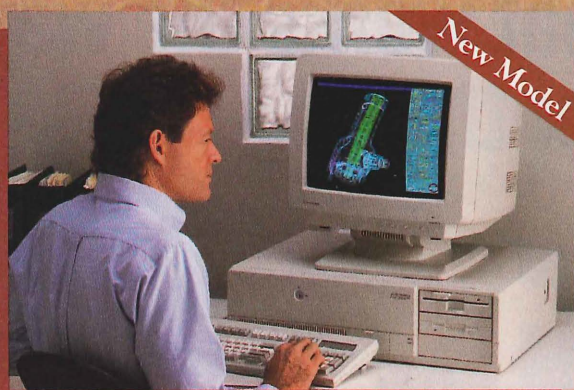
Let's break that down into plain English: If taxable income (cell C15) is less than or equal to \$30,950, then put 15 percent of taxable income into this cell, or else put 15 percent of \$30,950 plus 28 percent of taxable income above \$30,950 into this cell.

The \$30,950 figure is correct for married couples filing jointly. For 1989 returns only, substitute \$18,550 for filing singly, \$15,475 for married filing separately, or \$24,850 for filing as head of household.

The formula in cell C16 fails, though, when the tax rate climbs to 33 percent—taxable income above \$74,850 for a married couple filing jointly, for instance. By using the IF function twice in the same formula, however, I can include the 33 percent rate along with 15 percent and 28 percent:

=IF(C15<= 30950,C15*15%, IF(C15<= 74850, 30950*15% + (C15-30950)*28%, 30950*15% + (74850-30950)*28% + (C15-74850)*33%))

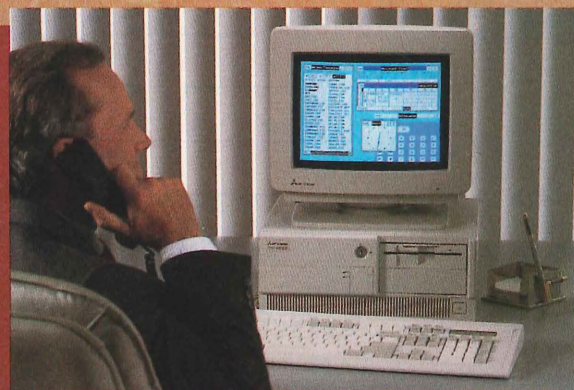
Again in plain English: If taxable income (C15) is less than or equal to \$30,950, then



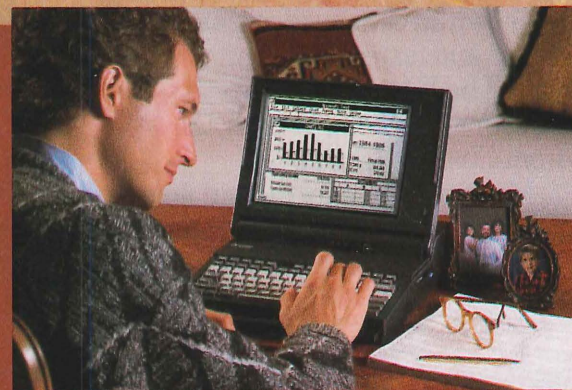
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put 15 percent of taxable income in this cell, or else if taxable income is less than or equal to \$74,850, then put 15 percent of \$30,950 plus 28 percent of taxable income above \$30,950 in this cell, or else put 15 percent of \$30,950 plus 28 percent of taxable income between \$30,950 and \$74,850 plus 33 percent of taxable income above \$74,850 in this cell.

This formula works for a married couple filing jointly, with a taxable income of not more than \$155,320 (the 33 percent tax-rate limit for that filing status, above which point an IRS worksheet must be used to calculate taxes). If your filing status for the 1989 federal return is different from mine, substitute the numbers in the following chart into your own tax-calculation formula. Don't forget all the parentheses and, if you don't already know your spreadsheet's syntax for its IF function, look in its manual.

Step 7. Finishing off the 1989 section of the spreadsheet entails entering income tax withheld (cell C17) and then creating another IF-based formula that determines how much I get back from or must give to the government (cell C18). Notice in cells A18 and B18 that the IF function can be used with text as well as numbers.

Step 8. Then I insert column D for 1990 taxes. As you can see in Figure 1, most of

Filing Status	15% Tax Rate Limit	28% Tax Rate Limit	33% Tax Rate Limit
Married/jointly	\$30,950	\$74,850	\$155,320
Single	\$18,550	\$44,900	\$93,130
Married/separately	\$15,475	\$37,425	\$117,895
Head of Household	\$24,850	\$64,200	\$128,810

the cells in that column are copies of the ones to their left in column C. Those cells that differ for 1990 are salaries, refund of state taxes, exemptions (\$50 more per person for 1990), withholding tax, and Schedule A deductions.

The last two changes are the major ones. Since my wife and I want to keep more money over the course of the year, and get back a smaller refund, our estimates of withholding and deductions are vital. In cell D17, I set up a simple formula that totals my and my spouse's weekly federal withholding and multiplies the total by 26 (we both get paid biweekly). You could create an analogous formula to gauge your quarterly estimated tax payments for 1990 if you're self-employed. I then set up a similar formula (cell D21) for state withholding tax (which becomes a deductible expense on the federal return if you itemize) and estimated our charitable deductions (cell D23). Note that for estimating interest paid in 1990 (cell

D22), I constructed a formula that multiplies as well as adds.

PLANNING FOR THIS YEAR AND THE NEXT

Now it's time to see what happens if I change some of the figures, since there are gray areas in almost every tax return. For example, I could change my valuation of noncash charitable contributions for 1989. Is the lower tax burden worth any potential dispute should I get audited? Do I have documentation to back me up? These are the kinds of questions what-if tax preparation with spreadsheets leads to; but the software supplies no answers, only hints to help you make good decisions.

Then on to plans for 1990. For example, our original federal withholding estimate would have given us a refund of more than \$1,000—more than we want. So by plugging various numbers into my 1990 withholding cell, I easily determined the best figures to give us a smaller refund for 1990.

When creating your own spreadsheet for any computerized tasks, remember this simple advice: Most of what I did is common sense. Just take the real world (IRS forms in this instance) and apply it to the computer. That way, you can ask abstract questions about real-world problems and come up with down-to-earth answers. ■

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Is Check-Writing Software Useful?

BY ROBERT J. CULLEN

How One Financial Expert Runs His Business With Quicken

Why put your checkbook on a computer? Rarely can you completely replace a paper checkbook, simply because most computers cannot be stuffed into your pocket or purse and carried around to write checks. Thus, you must update your paper checkbook register in addition to maintaining a PC checking account. Who needs the extra work?

SHOULD I COMPUTERIZE MY CHECKING?

Those were my thoughts as I began to judge the usefulness of *Quicken* (version 3.0) to my business and personal finances. I am an independent financial and computer journalist, which means I write about computerized financial applications for national publications. I am also a certified financial planner, which means I advise clients on money matters and invest their funds in securities, insurance, and real estate.

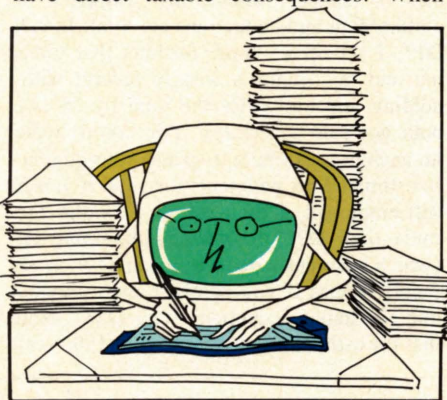
For the last three years, I have worked alone. However, my increased work load, plus a desire to expand my business, has led me to consider hiring a full-time administrative assistant. I operate as a sole proprietor, and I must file a Schedule C with my tax return. Like many others who run a home-based business, I combine several personal and business expenses. For example, I split the utility, cleaning, and mortgage expenses between personal and business use, according to Internal Revenue Service formulas.

To be suitable for my operation, a finance program must do more than simply automate check writing—it must also serve as an easy-to-use small-business accounting program. My present accounting procedures revolve around a handwritten accounts-receivable ledger and three checking accounts: personal, investment (a cash-management account with a brokerage firm), and business.

I see little benefit in computerizing my personal checkbook. With my wife and I writing checks on this account at numerous locations—the grocery store, cleaners, gift shop, and so on—maintaining a paper-based

register is a must. Entering these handwritten checks into *Quicken* merely to achieve better personal accounting is just too much work. Of course, others might not agree.

Entering our cash-management account into my computer is also an ineffective use of time. Used principally for savings and investments, this account sees little activity. Also, transactions from this account seldom have direct taxable consequences. When



I see three advantages to computerizing my business checking account.

they do, other documents—confirmation slips, mutual fund statements, and brokerage statements—provide better tax information.

That leaves my business checking account, and I see three main advantages to computerizing it: One, nearly every deposit placed into and every check written from this account carries a taxable consequence. Two, this account is often used to pay recurring monthly bills, a chore easily automated with a computer. And three, this checkbook seldom “goes on the road,” since I pay for business supplies with a charge card tied to this account.

IS QUICKEN MY ANSWER?

Quicken's check-writing and accounting capabilities are familiar to me from version 2.0 (see the review I wrote on page 28 of the August 1989 issue). At that time, I was impressed by *Quicken*'s easily understood

structure. The program adheres faithfully to the checkbook metaphor, to the extent of reproducing facsimile checks and check registers on-screen.

My evaluation of version 2.0 led me to maintain our personal and business accounts on my computer. That lasted only three months, though, since *Quicken* 2.0's limited accounting capabilities did not let me track my business income and expenses as closely as I had hoped to. Additionally, repeated problems printing checks with a dot-matrix printer frustrated me to the point that I stopped using the program.

However, since I intended to expand my business, I knew I needed better accounting procedures. When *Quicken* 3.0 became available, I was interested to see if its new features could persuade me to keep my business checkbooks in electronic form. I also thought that I could solve printing problems by using a different printer.

WHAT'S SPECIAL ABOUT THE NEW VERSION?

Quicken 3.0 offers expanded accounting capabilities over 2.0. Income and expenses can be grouped on four levels: categories and subcategories, classes and subclasses. Categories and subcategories specify the kind of income or expense of each transaction. Classes and subclasses designate who, where, and for what time period.

These capabilities let me allocate income and expenses between my financial-planning and writing work. In my writing, I produce articles regularly for three publications. I track expenses for each article so I can later bill the respective publications for reimbursement.

For example, the category Telephone Expenses is divided among three subcategories of my own making: Personal, Financial Planning, and Writing. The Writing subcategory is further divided into three classes, each representing a single publication. Finally, each publication class has a subclass to identify specific articles.

When I hire an assistant, *Quicken* 3.0's accounting capabilities will be sufficient to track payroll withholding. Unfortunately, the program does not calculate withholding based on claimed deductions, nor does it print payroll data on federal tax forms.

Quicken supplies suggested personal and business categories for tracking income and expenses. I modified mine to mirror expense categories on Schedule C. The reporting ca-

ROBERT J. CULLEN keeps busy as a home-based journalist, certified financial planner, life-insurance agent, and registered stockbroker.

pabilities of *Quicken* 3.0 will let me easily tally deductions for each expense.

WHAT'S IT LIKE TO PRINT CHECKS?

I started to use *Quicken* 3.0 with the starter check kit of 250 standard-size checks and 50 double-windowed envelopes (\$35). Using windowed envelopes eliminates the need to address envelopes.

With earlier versions of *Quicken*, I used a dot-matrix printer equipped with a tractor feed. Loading checks into the tractor feed was tedious and frustrating. This time, I used my daisy-wheel, letter-quality printer, which does not have a tractor feed. This printer relies on the friction of the paper roller to keep paper properly positioned. I know from experience that paper tends to creep slightly to the right as it feeds through the roller. I estimated I could print five to six checks before adjusting the paper.

To keep from wasting printed checks during my initial tests, I photocopied several checks and used those for experimenting. To my surprise, within five tries I had determined the proper left-to-right and bottom-to-top positioning for printing.

Since that first check, I have faithfully processed 95 percent of my business checks through my computer. As I guessed, I can print six checks before I need to realign the checks in my printer. The remaining 5 percent are checks that I write by hand because I need them immediately and my computer is not turned on. I enter the data for these handwritten checks into the electronic register the next time I use *Quicken*.

WILL I STICK WITH IT?

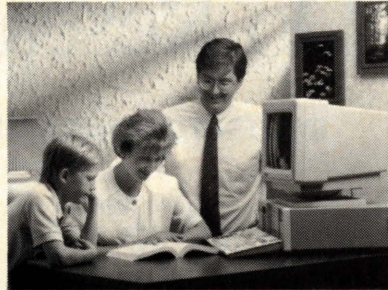
The best time to start with a new accounting program is two to three months before a year ends. This gives you time to experiment with categories and classes and check printing so you are comfortable with the program when the new year begins.

I am using *Quicken* 3.0 primarily to improve my accounting procedures. However, an added fringe benefit is the professional cachet of customized, computer-printed business checks. The dangers of losing one's professional edge by working in a home-office environment are real, so an automated accounting and bill-paying system adds an intangible yet important element to my professional self-image.

It's now been more than three months since I wrote the rest of the article above, and I'm still using *Quicken*. Will I stick with it? Check back in about a year. ■

Quicken v3.0 (\$60). Intuit, Inc., (415) 322-0573. System requirements: 320K IBM PC, PS/2; one drive (hard-disk drive optional); DOS 2.0 or higher. Also for 512K Macintosh; one drive (hard-disk drive optional); System 4.1 or higher.

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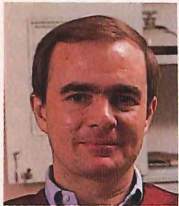
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Hiring an Information Specialist To Do Research

BY ALFRED GLOSSBRENNER



In *Neuromancer*, science fiction writer William Gibson postulates a world of networks connecting vast data banks of electronic information. He also imagines a portable appliance

called a Hosaka that can tap into these networks from any location to retrieve the answer to any question its owner may ask.

Most people aren't aware of it, but we live in such a world today. The answer to virtually any question you can think of is indeed available, and the Hosaka is a modem. But that doesn't mean you or I can find the answer, any more than most of us can rewire a house, install a furnace, or take on a major plumbing job. For jobs like these, we call in the pros.

TURN TO THE PROS

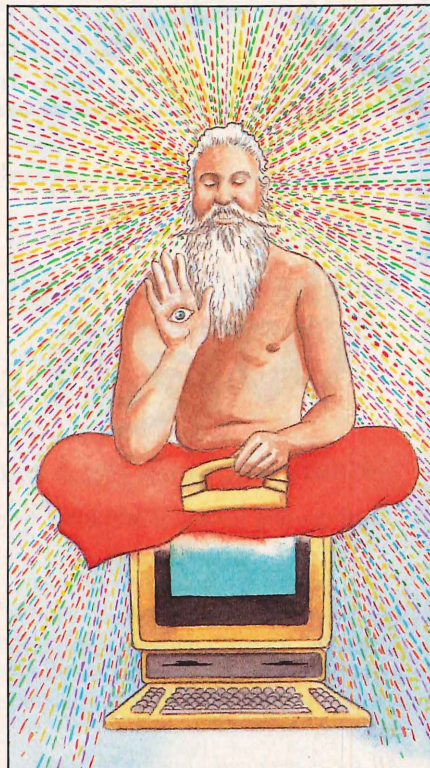
When you need to know, say, how much money the average American adult spends on chewing gum each year or the size of the market for organic houseplant food, you can try to research the topic yourself, do without the information, or contact a professional.

In the trade, people who specialize in gathering information for a fee are called information brokers, though *professional searcher* is a more accurate term. These are people adept at swimming in the information stream. They know which of the more than 4,200 available electronic databases are most likely to contain the answers you seek, and they know how to use the telephone and the library.

"On-line searches can be very useful," says Sue Rugge, principal of The Rugge Group, an information services firm based in Oakland, California. "But there's a lot more to information gathering than that. You have to use your imagination and all

the resources at your disposal—on-line searching, libraries, and the telephone."

Your information needs don't have to be esoteric for you to benefit from an information broker's services. You could require something as basic as a focused mailing list for your business. For example, there are at least three yellow pages-based databases capable of producing highly specific lists of addresses. An information broker is likely to know which of these databases is easiest to use and how to subscribe. Then the broker can search according to your specifications



and tell the database to transmit the information in mailing-label format.

Since all information requests are different, most brokers don't publish a set schedule of fees. You should be wary of anyone who quotes a flat fee for any search, regardless of topic. In general, expect to pay between \$35 and \$75 an hour, plus any costs for database searching, long-distance phone calls, and the like. Most brokers have a one- or two-hour minimum.

LOCATING A BROKER

Surprisingly, in an age where information is supposed to be the new coin of the realm, there are only about 1,000 practicing information brokers worldwide. Most are not able to make a living at it full-time and thus have day jobs, often as professional librarians.

To find an information broker in your area, contact the reference librarian at your local library. Ask if he or she knows of anyone offering professional search services.

You may even discover that your local library system has an established search service, available either free or at a small charge to cover expenses. College and university libraries are even more likely to offer such services.

And don't be shy. Don't think that your query sounds silly or fear that it may be too complex. Most library-based searchers I know are eager to help and feel vastly underutilized. Indeed, one of them once voiced her frustration to me, saying, "I've got all these skills and training. I can find the information people are looking for. I just don't understand why more people don't ask me to search."

Another way to locate an information broker is to send for Helen P. Burwell's *Directory of Fee-Based Information Services*. Published annually, this 260-page book lists brokers by name, company name, city, country, and subject-area expertise. In all, nearly 700 information brokers are listed.

The cost is \$37 (plus 7 percent sales tax if you live in Texas). To order, contact Burwell Enterprises, 3724 FM 1960 West, Suite 214, Houston, TX 77068; (713) 537-9051.

Finally, CompuServe subscribers should check the Working From Home Forum. Section 4 of the message board is dedicated to information brokering, and your questions will be swiftly answered by assistant sysop John Everett.

Fee-based information gathering is still a new profession. But I have no doubt that in the future information brokers will become as essential to the success of many businesses as accountants or attorneys. After all, whether you need help with taxes, the legal system, or information, much of the time it simply makes good sense to call in a pro. ■

Contributing editor ALFRED GLOSSBRENNER is the author of Alfred Glossbrenner's Master Guide to FREE Software for IBMs and Compatible Computers and The Complete Handbook of Personal Computer Communications—Third Edition (St. Martin's Press, New York). He can be reached at (800) 628-7637.



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How to Write a Great Speech

BY PETE SILVER

Ten Secrets from a Speech-Writing Pro

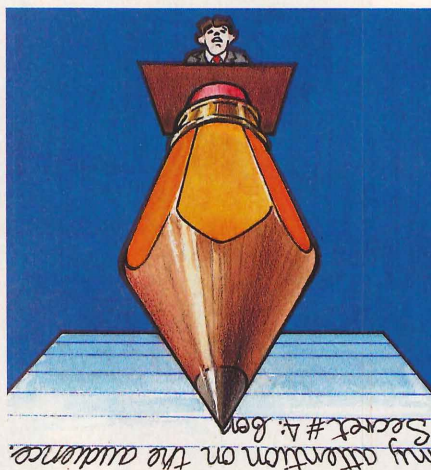
Some executives and entrepreneurs think that good public speakers must be born with the "gift of gab" to speak with power, persuasion, and passion. From experience, I know: It ain't true. Whether your goal is to impress associates, attract more customers, recruit future employees, or boost potential investors' opinions of your company, good speeches are often good for business. Here are 10 secrets about public speaking you can use to accomplish your speaking goals.

Secret #1: Where do you begin when you write speeches? Try starting where I do: at the end. I imagine what I want the audience to understand, know, or believe when they walk out of the room. I subscribe to the Oreo Cookie theory of speech writing: Start with the outsides, then work on the creamy middle. My endings often include a minute or two about my commitment to the topic. I do a brief wrap-up of what I've covered in the speech, and then close with a story designed to get people on their feet, ready to return to work knowing and understanding more than when they arrived.

After the ending is clear, I write the beginning of the speech, paying special attention to getting my audience (or if I'm writing the speech for someone else, my client's audience) excited. For example, I may tell a story to engage them emotionally. If I'm talking about marketing, I might tell "my best marketing success story ever," which is about how I placed a personal ad and met my future wife. Woven through that opener is a series of laugh lines I know will warm up and relax the audience—and give me a chance to find the friendly faces every speaker looks for in an audience.

Once the ending and the beginning are set, I then write the "meat and potatoes" of the speech: the facts and figures I want to communicate.

Secret #2: I believe in modular speeches: One story can be used in several different speeches. I talk about how I met my wife in speeches about marketing, human relations, analyzing your prospects, and even direct-mail promotion! The advantage is that modular speeches give me flexibility. In Michi-



I subscribe to the Oreo Cookie theory of speech writing: Start with the outsides, then work on the creamy middle.

gan, I was to address a group of transportation executives for 90 minutes. The day before the meeting, the planner called to ask if I would extend the talk to two hours. There had been a small change in the schedule, he said. I consented. The next morning as I ate breakfast at the hotel, the meeting planner came over with a look of impending doom on his face. And he asked if I would extend my program yet another hour. Thank goodness for modular materials! I told the meeting planner to relax; I would start at 9:00 a.m. as promised and conclude at noon. At about 11:55, he walked into the room, and I brought the program to a successful close, right on schedule.

Secret #3: Presentation techniques are learned: Most speakers aren't born with a special talent. I learned that the hard way about six years ago—in front of the National Speakers Association! I had rehearsed my custom-written speech to perfection; but once I was in front of the audience, I couldn't take my eyes off the page! Friends asked what happened: I had frozen in fear that I would fail. And I bombed! A few days later, I addressed a group of physical therapists, colleagues of my wife. Since I wasn't being paid, I reasoned, I could try out a new

way of speaking: without notes. So during the dinner preceding my speech, I jotted down five key words upon which to base my presentation. When I stood up, I had constant eye contact with the audience—and they loved it. To this day I rely on the key-word trick to keep my speeches on track and my attention on the audience.

Secret #4: Content exerts only a small influence on the audience's perception of your speech. Your presentation skills and the way you show you care for the audience count far more. Hundreds of speeches later—all without notes—my ratings from audiences on content and style are always high.

Secret #5: Tape recorders can be more effective tools than your word processor if you're the kind of speaker or speech writer who likes to hear a speech before you give it. Sometimes when I am wrestling with a new speech, I'll use a microcassette recorder in my car as I drive and give the tape to a secretarial service for transcription. I then take the floppy and use my word processor to prepare the final version.

Secret #6: Specialized publications, such as the three below, can help you write better speeches.

1. *The Executive Speaker* is a newsletter full of valuable speech-writing tips and excerpts from effective speeches; published monthly by Robert O. Skovgard, P.O. Box 292437, Dayton, OH 45429; (513) 294-8493. \$104 per year.

2. *The Executive Speechwriter Newsletter* contains material from many sources to stimulate your thinking; published six times a year by speech writer Joe Taylor Ford, Emerson Falls, St. Johnsbury, VT 05819; (802) 748-4472. \$75 per year.

3. *Vital Speeches of the Day* contains full-length speeches by important politicians and business people in our society; published twice a month by Thomas F. Daly, City News Publishing Company, 389 Highway 17 By-Pass, Box 1247, Mount Pleasant, SC 29465; (803) 881-8733. \$30 per year.

Secret #7: Many speakers use ghostwriters. One ghostwriter, who writes for executives of one of the world's largest corporations, describes her special process of speech writing. "First, I must articulate the 'problem,' which is the basis of the speech (corporate takeovers are bad for America, for example); support the thesis with com-

PETE SILVER has written more than 300 speeches in his career.

elling arguments, data, anecdotes (take-overs put thousands of people out of work, disrupt communities where businesses are located, provide only short-term financial gain to shareholders); reveal the 'cure' for the problem (corporate managers must focus on long-term good over short-term gain); and spell out how this can happen (through company investment in research and development, manufacturing advances, employee training). I believe the speech must be written to challenge its listeners—to either change their thinking or their behavior. And like a good comedy routine, a good speech should leave an audience wanting more, not merely thankful that it's over!"

For humor—clean, pointed material—professional writers can be helpful and surprisingly affordable (\$200 to \$300 can get you great stories and one-liners). Or try a few magic tricks to wow your audience. Peter London is a professional comedian and magician who writes for corporate executives, politicians, and others in the public eye. His videotape, *Quick Tricks*, teaches you how to do magic tricks for clients and audiences (\$20; Box 3073, New Haven, CT 06515; [203] 387-2280). Leave any questionable humor or gimmicks at the door. You don't need to be funny to be effective.

Secret #8: Some speakers have professional coaches. Tom Kirby, who works in New York and Orlando, trains executives in presentation skills and heads the Executive Communication Training Network. His booklet, *117 Ideas for Better Business Presentations* is a concise guide to getting your message across (\$5; ECTN, Box 547216, Orlando, FL 32854; [800] 456-1076).

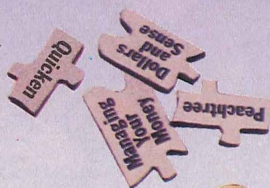
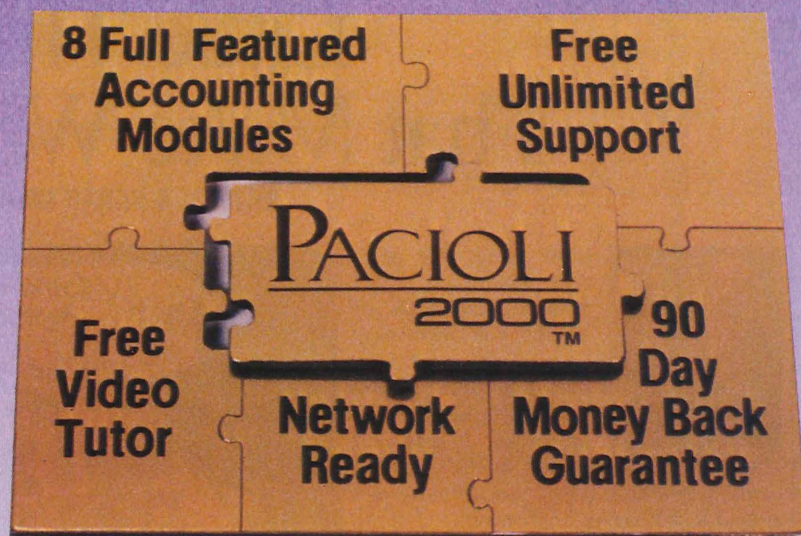
Secret #9: You can join organizations to network with others who speak. Toastmasters International has 150,000 members nationwide who meet to improve communication skills. The cost is extremely low. For information on local group meetings, contact Toastmasters at 2200 N. Grand, Santa Ana, CA 92711; (714) 542-6793.

The National Speakers Association is the leading organization serving professional and aspiring speakers. They annually publish *Who's Who in Professional Speaking*, a 300-page-plus directory of 2,900 speaker profiles with photos. For the latest edition, write to 3877 N. Seventh St., Suite 350, Phoenix, AZ 85014; \$25.

Secret #10: Confine your message to a maximum of three points. Don't try to cram too much material into your speech, because the audience won't be able to understand or remember more than three points.

No matter what kind of speech you're trying to write, the old rule still applies: "Tell 'em what you're gonna tell 'em. Then tell 'em. Wrap up by telling 'em what you told 'em." And get ready for a big round of applause! ■

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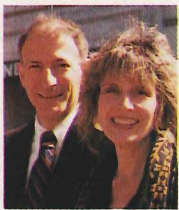
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Little Things That Make Work Easier

BY PAUL & SARAH EDWARDS



Little things that don't cost much and aren't terribly glamorous or exciting can often make your work easier. The following little lifesavers aren't usually high on the list of musts for setting up a home office. In fact, they're easily overlooked, things you just never get around to buying or implementing. But we did, and we can say it's the little things that count.

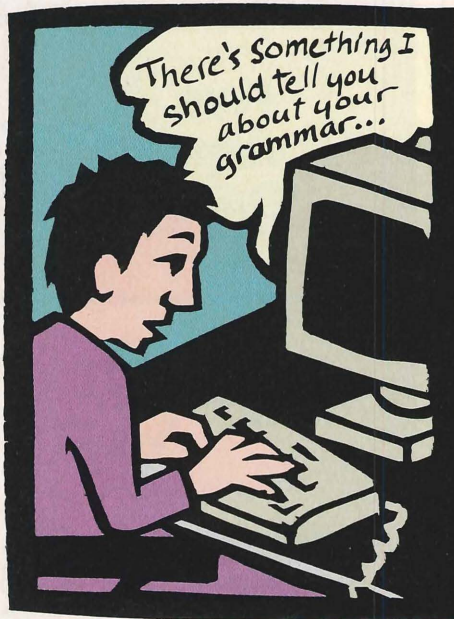
1. A Telephone Headset. A headset allows you to keep both hands free to make notes or perform other tasks while you talk and is particularly handy when you've been put on hold. We use the Plantronics SP-04 headset, which is comfortable and provides satisfactory incoming and outgoing voice quality.

2. A Cordless Phone. With a cordless phone, you can go to your filing cabinets and move from room to room without interrupting your conversation. It also helps when overnight couriers arrive or the dog is scratching noisily at the door.

3. Transparent Address Labels. Clear labels are more attractive than opaque labels and can make an address look as if it's been printed directly on the envelope. Clear laser labels work with both copy machines and laser printers. You can order them now from *The Reliable Home Office catalog* ([800] 621-4344), and a line from Avery should be sold in office-supply stores by this spring.

4. A Copyholder. You almost have to be a contortionist to transfer text or numbers from paper to disk! You lose your place. You crook your neck. You prop up the paper on the monitor. It falls over. You lose your place. The simple solution is a copyholder. Copyholders come in many styles, from freestanding models to flexible arms that you attach to your monitor. Legal-size and extra-wide versions for spreadsheets are also available. They range in price from under \$6 to \$150, the latter for an electric model that advances your copy as you work.

5. Cleaning Supplies. Everything in your office gets dusty and dirty. To avoid lugging



Bad grammar is like bad breath—you don't know you have it until someone points it out.

around spray bottles, paper towels, and rags, use premoistened cleaning towels. Fuji, for example, makes premoistened towels for cleaning computers and other electronic components. Dow makes Spiffits, a line of premoistened towels that includes an all-purpose cleaner, a glass cleaner, a wood polish, and a scouring towel. We keep an entire set right in the office. The Dust-Off air-spray canister (Falcon; [201] 707-4900) cleans hard-to-reach areas; it costs about \$5 and can be found where photography supplies are sold.

6. A Check Protector. For people who work at home, being taken seriously is a major concern. Large companies use check protectors, which cost around \$160. They enable you to send out checks with the amount embossed, which makes alteration impossible.

7. Grammar-Checking Software. Bad grammar is like bad breath—you don't know you have it until someone points it

out. Grammar-checking software saves you the embarrassment. You can quickly check your documents for grammar errors, just as you do for spelling mistakes. We use Reference Software's *Grammatik* (\$99).

8. Postal Supplies. We find the lines at the post office are always longest when we're in the biggest hurry. A digital postage scale, which costs about \$100, can save you hours each month. You weigh and stamp all outgoing mail yourself. To determine the correct amount of postage, get a booklet on rates and fees from the U.S. Postal Service and keep a supply of stamps in all denominations on hand. And don't forget to stock Express Mail envelopes as well as stamps and certified and registered mail forms.

9. Plastic Stacking Trays. Can't find anything on your desk? Can you even see the desktop? Plastic stacking trays can clean up desktop clutter in a snap, and they're only \$2 or \$3 apiece. They're excellent for storing documents you use too frequently to be filing repeatedly.

To organize the pens, pencils, Post-it pads, paper clips, rubber bands, scissors, staplers, and magic markers rolling around in your desk drawers, consider using plastic silverware trays; we find they fit perfectly and do a great job.

10. File-Finding Software. Some people spend more time looking for things they can't find than they do on any other activity. What's more frustrating than not being able to remember what you named a particular file six months ago? File-finding software enables you to search through your hard-disk drive and locate files by using any keyword or phrase that appears in the file.

11. A Time-Management System. In the audiotape *How to Master Your Time* (\$60; Nightingale/Conant), Brian Tracy claims you can gain two hours a day if you learn how to manage your time effectively. A personal organizer or time-management system can help you apply the many time-management principles you already know—such as setting goals and objectives, using to-do lists, delegating, and project planning.

The Day Runner is a paper-based system designed specifically as a time-management tool, not just a calendar and address book. Prices start at \$45, depending on your choice of binder. Sharp's Wizard (\$300) and the Psion Organiser (\$300) are hand-held, electronic organizers (with address, calendar, and appointment functions). ■

Contributing editors PAUL & SARAH EDWARDS are authors of Working from Home: Everything You Need to Know to Live and Work Under the Same Roof. They run the Working from Home Forum on CompuServe (GO WORK) and cohost the "Home Office Show" every Sunday night on the Business Radio Network.

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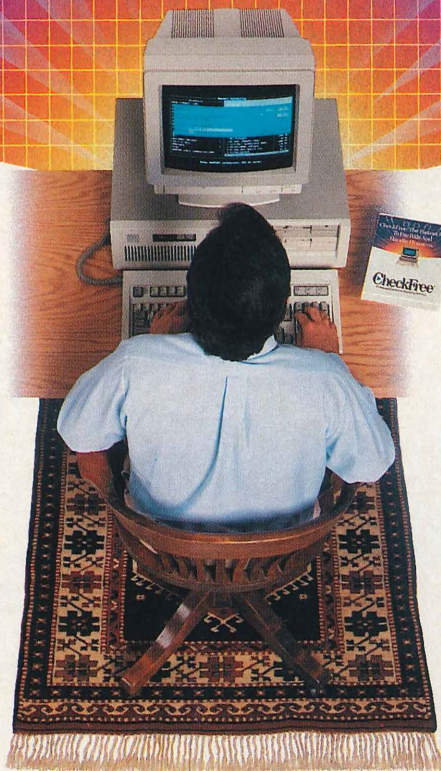
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CIRCLE READER SERVICE 52

Five Women Who Changed Their Lives

*How You Can Grow Personally and Professionally
With a Computer-Based Business at Home*

BY KATHERINE BURTON

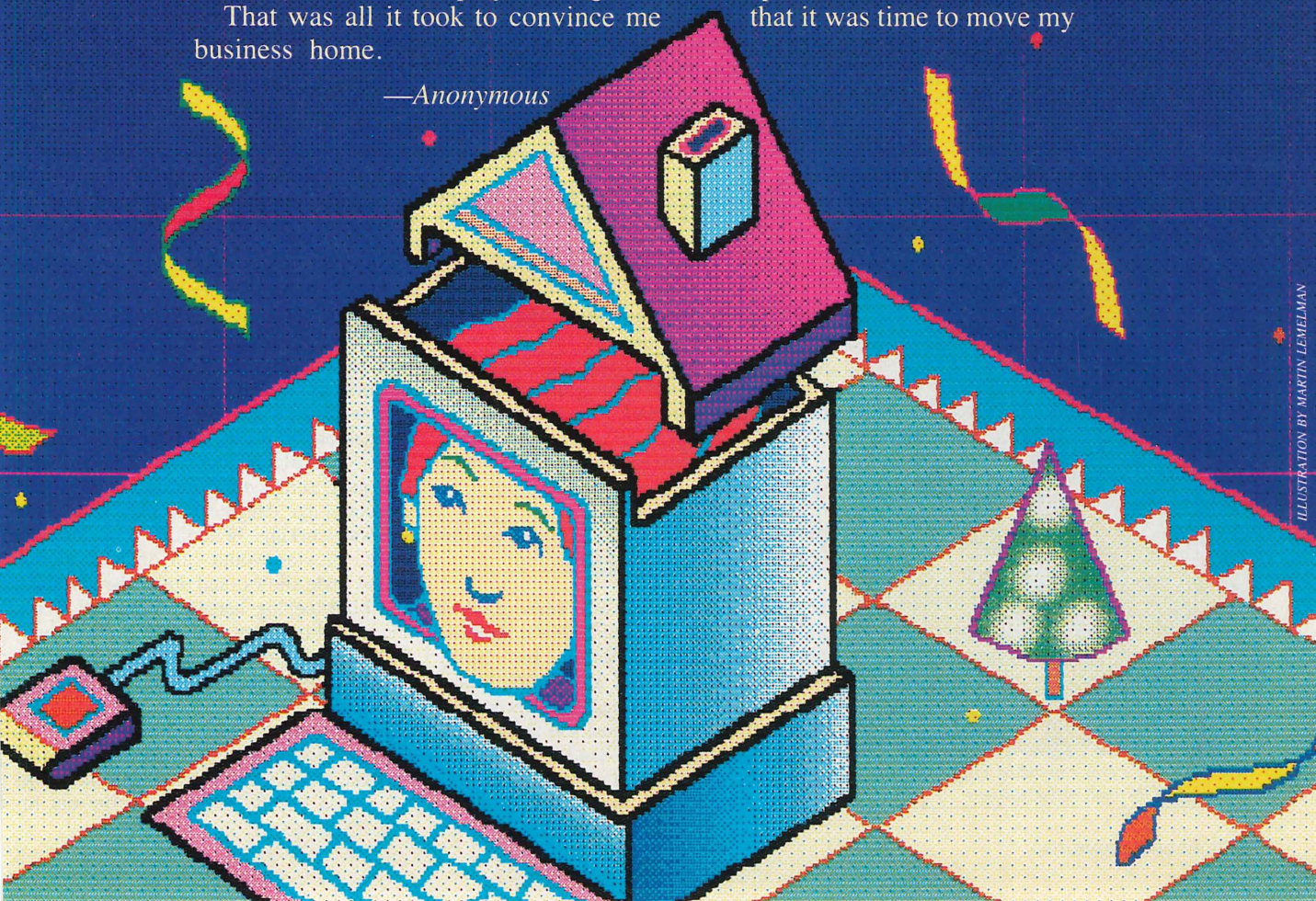
I was getting ready to go to the office one morning (I own my own public relations business) when the phone rang. It was the head of my son's school calling to discuss my son and two of his friends, who had been skipping school for the past two weeks. Needless to say I was shocked, but even more astounding to me was that someone at the school (a small private boys' school) hadn't noticed the boys' absence sooner. The entire fifth grade had only 30 students. How could they not miss them? My surprise turned to anger—I paid good money to the school and expected stricter, more responsible supervision.

"Do you mind telling me where three 10-year-olds are going in the middle of the day?" I demanded.

"To *your* house to play video games," he replied

That was all it took to convince me that it was time to move my business home.

—Anonymous



Five Great Reasons to Stay Home

Why are more and more women choosing to work from their homes? Some of the reasons lie in the failed expectations of the women's movement over the last 30 years. Corporations (and husbands to some extent) have done little to accommodate woman's dual role as a mother and a career person, so some women have started home-based businesses as a way to spend more time with their young children. Some have rejected the corporate life because of slow promotions or small paychecks. Trained by the corporation, they leave to set up their own—sometimes competing—businesses.

Other motivations for setting up shop at home are more personal. Some women have found themselves without means of financial support after a divorce or the death of a spouse, or have been left homebound by severe disabilities. Others simply want to be their own bosses. Here are five great reasons to consider starting your own work-at-home venture.

1. More Money

Although a salaried corporate job guarantees you a steady income as long as you hold your job, the earning potential of your own home-based business can be much greater.

The hours you save on commuting can be

productive. And you can earn more money for the same amount of work because no one is skimming profits from your pay. Your earning potential isn't dependent on political hierarchy or the availability of higher-paying positions. Everything you do directly benefits you and your business. Work-related expenses such as transportation, clothing, and restaurant lunches are eliminated, and any such expenses that you incur for your own business can be tax deductible.

2. More Family Time

It is difficult, if not impossible, to run a full-time business from home and care for young children at the same time, but being at home more means you will be available should your family need you. You can greet your children when they come home from school, keep an eye out for emergencies, and if you hire a day-care center or private nanny to help out with the kids, you'll be able to supervise the care your children receive.

3. More Satisfaction

A home-based business will challenge your initiative, creativity, responsibility, and self-discipline. What better way to improve your self-esteem than to succeed on your own? As founder, owner, and CEO, you are equal to principals in other businesses. Your expertise, quality assurance, and professionalism are keys to success.

4. More Freedom and Flexibility

You decide when to meet with clients and when to go on a picnic with your family.

You decide what marketing strategy to pursue. And you decide what color business cards you want. Since you are the boss, you have the freedom to set things up just the way you like them. If you want to wander into the garden or take a shower in the middle of the day, there's no reason you can't. You have the flexibility to schedule exercise, family time, and community functions as you please. While the business will demand a lot from you, the freedom to deal with it on your own terms is one of the most compelling arguments for setting out on your own.

5. Less Stress

No rush-hour commute and healthier lunches can reduce the level of stress you deal with on a daily basis. Having flexibility in the care of your children brings peace of mind, as does the greater control you have over your future success. Running a business can be stressful, but it is self-imposed stress—somehow easier to handle than a pain-in-the-neck job.

RAGS TO RICHES

The five women profiled here show how starting a home-based business has changed their lives. All had little to no business experience before they began. None had ever used a computer. None believe that being a woman has been an obstacle. And for all of them success has come from developing or capitalizing on an area of expertise.

KATHERINE BURTON is a freelance writer living in New York City. Her first book, *Walking Medicine*, will be published in mid-June by McGraw Hill.

Mom Balances Kids and Crafts

SNAPSHOT

Karla Blevins, Holdrege, Nebraska

COMPANY: Karla's Kreations, Inc.

EQUIPMENT: IBM AT compatible (Qubie) with 80MB hard drive, IBM PC36 multiuser computer, two Panasonic high-speed, wide-carriage dot-matrix printers.

SOFTWARE: Customized financial and inventory-control programs.

1989 INCOME: \$500,000

Rx FOR SUCCESS: "As trends change, you have to be willing to change with them."

Karla Blevins has always been good at crafts. She often sewed pillows, embroidered fabric, and made toys for both family and friends. When she gave birth to her third daughter 10 years ago, Blevins decided she wanted to stay at home. So she quit her teaching job to try her hand at selling the handiwork she had been giving away.

What started as a one-woman show, in

which Blevins, 38, did all the manufacturing and selling from her home in Holdrege, Nebraska, is now Karla's Kreations, a \$500,000-a-year-plus wholesaler of decorative accessories, including pillows, wall decorations, baskets, and wooden blocks.

The business started out small. "I never had anyone come in and take care of the kids," said Blevins, who set up a work area and gave scraps of materials to her three preschool-age daughters to play with while she was working. In addition to making the items, Blevins would call on local stores, attend trade shows, and do all the invoicing and bookkeeping herself. After two years, she started hiring people to help with manufacturing, and by the time her children started school, the business was really beginning to take off.

But the growth, 200 to 300 percent in the first few years, had its drawbacks. Blevins was becoming overwhelmed with the work. "It would take hours just to write out in-



Karla Blevins's ever-expanding crafts business is now testing the mail-order market.

voices," she said. At the five-year mark, a choice had to be made: expand or get out of the business.

Expansion was the answer. "I decided to go with sales reps so I could spend more time with my girls," says Blevins. She now has 10 reps and distribution from Maine to Hawaii. Thirteen people work out of her 2,500-square-foot basement, and 40 contractors make items in their own homes.

In 1985, as part of the expansion, Blevins computerized her business with the help of her husband, Mark, and a freelance programmer. An IBM PC clone with customized software now provides check registers, tracks inventory of finished goods and work in progress, and manages accounts receivable, functions that have enabled her to reach her present sales level of 50,000 to 75,000 units annually.

As for household chores: "We have a housekeeper who comes and cleans, a person who does the ironing, and we eat out three times as much as before."

Although Blevins had no previous business experience, she's learned quickly how to be successful. "The quality of my goods is always as good or better than expected, and I've learned to change my lines with the trends in home decorations."

Literary Agent Books Success

Denise Marcil started in the publishing industry when she was 22 years old. But she quickly learned that working for someone else meant working too hard for a smaller slice of the pie. By the time she was 24, she had opened her own literary agency in her apartment on the Upper West Side of Manhattan with a typewriter, a phone, and some filing cabinets. "It was a real seat-of-the-pants operation," says Marcil of her first years on her own. Yet despite her upstart beginnings, 13 years later she grosses \$2 million annually, represents more than 80 authors, employs one full-time assistant and two part-time workers, and owns a computer, a copier, and a brand-new facsimile machine ("publishing has gone fax crazy").

SNAPSHOT

Denise Marcil, New York, New York

COMPANY: The Denise Marcil Literary Agency

EQUIPMENT: IBM PC, NEC daisy-wheel printer, Toshiba 3600 fax, Toshiba copier

SOFTWARE: PFS:File, PFS:Write, PFS:Report

1989 INCOME: \$2 million

Rx FOR SUCCESS: "Focus on what you know."

Marcil, who specializes in women's fiction, mainstream fiction, how-to, self-help, and business books, began her company, The Denise Marcil Literary Agency, by hunting down writers on a trip to her childhood home of Americus, Georgia.

Driven by the desire to run her own show, Marcil spent her first year drumming up business. "I spoke at every writing class possible, from the YMCA to New York University." She also went to writers' conferences and befriended magazine editors, who sent her promising authors.

The agency's author list expanded, but as business grew, so did the paperwork; and five years ago, Marcil decided to buy a personal computer. She spent nine months researching her purchase.

Marcil had never used a computer before and was a little anxious about buying one, but the more research she did the more comfortable she became with the idea. Her research also made her think about exactly what she needed the computer to do: Not only would it be useful for word processing, but she could use it for payroll, tracking manuscript submissions to publishers, and



Denise Marcil found that adding technology helped her manage the growth of her literary agency.

recording finances.

Her IBM PC and PFS software have even helped Marcil make business decisions. At the end of her first computerized year, she was able, for the first time, to break down all her income into several categories—for example, royalties, foreign rights, and advances. After studying her income sources this way, she made an immediate business decision to cut back on foreign-rights sales, a time-consuming activity that produced

only a small portion of her total earnings.

Over the years, Marcil has also learned some important lessons about working out of her home. She recently moved from an apartment where she had a small office and an assistant working in the living room to one in which everyone works in an area separate from the rest of the apartment. "I was tired of people traipsing through my living room," said Marcil. "This new set-up makes working at home doable." →

PHOTOGRAPH BY JOSEPH BERGER

Dynamic Duo Builds Skills for the Future

"A woman at home today is a woman at risk," says Christine Donovan. "She may have few job skills and have been out of the marketplace for 5 to 10 years. She's in a precarious position, because one day, she may have to support herself." Donovan and her partner Deborah Dawson, both at-home mothers, have turned their concerns into a business by publishing *The Woman's Workshop Quarterly*.

Donovan and Dawson started their newsletter—first published in the summer of 1988 from their homes in Coronado, California—out of frustration. They felt the media were giving at-home mothers short shrift. Sure, there were plenty of stories about women with high-powered careers who abandoned it all to raise a child, but none about women who marry at 24 or 25 and leave work soon after to raise children. "Most at-home mothers don't have a foothold in a career," says Donovan.

Donovan, 38, and Dawson, 33, hold themselves up as examples. Both Navy wives, they move frequently, sometimes staying in a town for only four to six months. This makes for a patchwork résumé at best. Both have small children they want to care for (Donovan's are five and seven, and Dawson's one, three, and five), and yet both want to be involved in other activities too. "We didn't start a business for business's sake," said Donovan. "Both Deb and I felt very

strongly that we wanted to start a business to improve our job skills, not so much to make money." Donovan had had experience as a public relations writer, and Dawson as a publications editor; they decided they could help other at-home mothers and simulta-

SNAPSHOT

Deborah Dawson, Yokosoka, Japan
Christine Donovan, Coronado, California

COMPANY: *The Woman's Workshop Quarterly*

EQUIPMENT: Apple IIc, Macintosh Plus

SOFTWARE: *AppleWorks*, *Microsoft Word*, *Reflex Plus*

1989 INCOME: Not Available

Rx FOR SUCCESS: "An at-home mother should develop a career goal and bone up on the skills that go with that goal."—Donovan

neously meet their own needs by publishing a newsletter.

Developing *Woman's Workshop*, which now has a national circulation of 3,000, took about a year. Dawson and Donovan met regularly to draw up plans, divide responsibilities, and establish their editorial point of view. They knew they did not want to be advocates of staying at home, nor did they want to appear too traditional ("No recipes and no articles about parenting," said Donovan). They did want to help other at-home mothers balance full-time mother-

hood with outside interests and help prepare them for the day they might want or need to enter the work force.

The newsletter explains how to keep one foot in the working world through volunteer activities, continuing education, part-time jobs, or home-based businesses. Each issue also features a profile of a famous woman, like syndicated columnist Erma Bombeck or Senator Nancy Kassebaum of Kansas, both originally at-home mothers who began their careers after their children were grown.

Their next step was to buy computers, which neither of them had used before. Donovan purchased a used Apple IIc. Her computer needs were limited to word processing, and she wanted a computer similar to those being used in the schools in southern California so she could introduce her children to computing. Dawson bought a Macintosh because of its desktop-publishing potential, but she uses it mainly to keep a database. Neither of them was computer-phobic, although Donovan, who still writes with a pen, calls herself "computer resistant." After taking an adult education course in computers and going through the usual frustrations of learning something new, they were on their way.

Their partnership is a marvel of organization, especially since Dawson now lives in Japan, where her husband is stationed. "We knew she was moving when we started, so

Christine Donovan and Deborah Dawson (insert) develop business skills without disrupting family life.



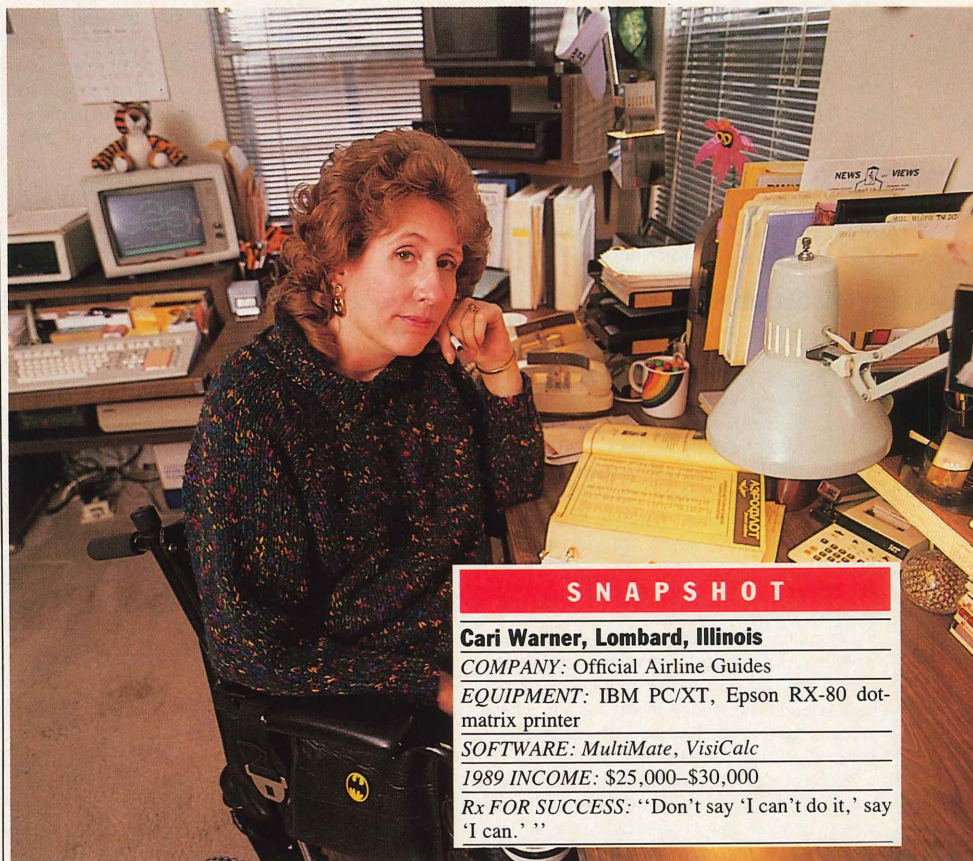
Programmer Regains Independence

we set up the business as if she were already gone.” They divided their tasks into modular units. Donovan covers marketing and all editorial content (either writing articles herself or assigning them to other writers). When she finishes her work, she passes all the material over to Dawson, who handles editing, production, and distribution (since Dawson’s move, Donovan oversees the final printing and mailing). In this manner, they do not need to continually pass work back and forth, and each woman has an area of ultimate authority, which makes things much more efficient than sharing every decision.

Their main priority (and that of the women they profile in their newsletter) is caring for their children, and neither hires sitters or sends her children to day care so she can work. Their time is therefore limited (which explains why *Woman’s Workshop* is a quarterly rather than monthly publication, for example), and their tasks are completed when their children are asleep or at school. Donovan toils in the very early morning and at nap time, and Dawson late into the night. Both of their husbands are often away from home, which leaves them more free time. To ensure that the newsletter is always sent out on time, the team is six months ahead of the publication schedule. This way, they can handle any emergencies that may arise at home without deadline pressures.

Donovan and Dawson’s business remains relatively low-tech. Dawson shunned desktop publishing as too time-consuming to learn, so the copy is typeset and pasted up the old-fashioned way. They never felt the need to have compatible computers because the amount of information they need to share is very small. Nor, despite the thousands of miles between them, do they communicate via modem or facsimile machine. An occasional phone conversation is all that’s needed to keep the operation running smoothly.

The business, which began on a shoestring budget of \$3,000, has already paid back its initial investment, helped by an efficient and inexpensive marketing plan that depends solely on publicity in newspapers and magazines and numerous interviews on radio talk shows. The money earned from subscriptions is reinvested and goes toward paying people to answer mail or hiring writers, for example. “It is more important for Deb and me to have people do things for us and give us more free time than it is to make money,” says Donovan, who reports that some of this “free” time may be used to write a book or organize seminars in the future. Although their business goals may seem unorthodox, Donovan is philosophical about the success of their venture: “There are two ways to make money: Make money today, or develop skills to make money tomorrow.”



SNAPSHOT

Cari Warner, Lombard, Illinois

COMPANY: Official Airline Guides

EQUIPMENT: IBM PC/XT, Epson RX-80 dot-matrix printer

SOFTWARE: MultiMate, VisiCalc

1989 INCOME: \$25,000–\$30,000

Rx FOR SUCCESS: “Don’t say ‘I can’t do it,’ say ‘I can.’”

Cari Warner telecommutes to her programming job with Official Airline Guides four out of five days a week.

In January 1976 a car accident left Cari Warner paralyzed and in a wheelchair.

Warner, then a 29-year-old bookkeeper, sold her house, moved back home with her parents, and slowly tried to put her new life together. With only the use of her left hand and worries about being able to return to work or go to school, she wondered if she would ever be independent again.

Fourteen years later, Warner is again living on her own and has joined the new wave of workers who telecommute to their jobs.

Learning to program a computer was the catalyst to self-sufficiency, despite the fact that Warner had never used a computer before her accident. In 1980, Warner began working with a national nonprofit organization called LIFT, which trains people with severe disabilities to program computers, and then places them with corporations.

Computer programming and telecommuting have opened new career doors for people with disabilities. Working from home eliminates the problem of transportation to and from the office, and computers can be modified easily (for example, Warner has locks on the Shift, Alt, and Control keys so she can type with one hand) so that even people with very limited movement can use

them. Working at home also allows for a flexible work schedule. Warner, for instance, staggers her shifts so she can accommodate her physical therapy sessions.

Warner was initially unsure about how much she would like programming, although she was not at all worried about learning to use a computer. She enrolled in a programming course at a nearby college, enjoyed it, and entered LIFT’s program.

In 1983 she joined her current employer, Official Airline Guides, and by 1984 she had bought and moved into a small apartment building (she lives in one apartment and rents out the three others).

Warner goes into the office once a week, on average, and works the rest of the time from her home in Lombard, Illinois, on an IBM PC/XT connected via a dedicated line to the mainframe at the company offices in Oak Brook. She also uses her PC for word processing and managing the finances for her apartment building.

The most important lesson Warner has learned, both as a woman and as a person with a disability, is that if you act as a professional, people will treat you as one. “My chair is invisible now. I have no feeling that my coworkers notice it is there.”

The computer industry, once heralded as the first "modern" field that men and women would enter in equal numbers, has not lived up to its androgynous expectations.

Women have failed to flock to higher-paying jobs in programming and computer science, approaching only the lower rungs of word processing and data entry in any great numbers. And women who go into business for themselves are less likely to use computer technology than their male competition. Social scientists believe that, as in mathematics and the sciences, the reasons for low participation may lie in the way women are socialized.

A MASCULINE MACHINE?

"Computers are white-collar hot rods," says Jo Sanders, director of the Computer Equity Program of the Women's Action Alliance. "In their own way, they're as masculine as racing cars and football."

"The idea of a computer gene is silly," says Sanders. Rather, she believes that females are discouraged from computer use because it is such a male-dominated activity. According to Sanders, U.S. government statistics show that only 10 percent of computer science Ph.D.'s are women. In the workplace, 30 percent of systems analysts and computer scientists are women and 32 percent of programmers are women. And this male prevalence begins at a young age. Go into most computer centers in high schools and grade schools, or into a local video arcade, and the majority of people in front of the screens are male.

Women, according to Sanders, thus believe that being feminine is incompatible with computing. It's not that women can't compute but that they have no role models telling them that it's OK.

Socialization may also come into play. Deborah Brecher, head of the Women's Computer Literacy Center in San Francisco, believes that disparities between the sexes in this field (and in mathematics and the sciences, too) exist because of differences in the way men and women learn. Computing is generally taught as a series of rules. But Brecher, who taught programming at Sonoma State University in California, found that the women in her classes would always ask for the why behind the rules, while the men were content to hit keys until they got the desired results.

"Women have a high anxiety level about doing things without understanding why," said Brecher. "They are afraid of what will happen if they break the rules." Brecher feels this anxiety stems from differences in socialization. "Girls and boys grow up playing different games. Boys play rule-based games earlier than girls, and girls' games usually don't give trial-and-error choices. In a boy's game, if you strike out, there is always a next time up at bat." Girls usually participate in role-playing games, such as playing house, where there are few if any rules.

Both Sanders and Brecher see an increase in concern about computer inequity and a decrease in technophobia among women. Brecher notes that fewer students (about 15 percent of each class) are afraid to use computers than when she started the center eight years ago. "Usually the women who were most afraid are the most enthusiastic at the end of the session," says Brecher.

When you decide to bring technology into your business, one of the first things you should do before you purchase any equipment is figure out which software packages will help you accomplish your goals. Following are some inexpensive and easy-to-learn programs in the major software categories. All are recommended and time-tested packages that offer powerful features for running a business without sacrificing accessibility. They are designed so that you can use the basic features right out of the box and learn the more complex features

as your business needs grow.

One of the best options for beginners is to start with an integrated program that combines word-processing, spreadsheet, database, communications, and graphics functions. As your computing needs develop, you can supplement the modules of your integrated package with full-featured, stand-alone programs.

This list should serve only as a starting point in your research. Some of these programs may suit your needs perfectly, while others will fall short of your expectations.

INTEGRATED

Microsoft Works v2.0. (Reviewed in September 1989.) 1MB Macintosh (\$295), 512K IBM PC (\$149). Microsoft Corp., (206) 882-8080.

PFS: First Choice v3.0. (Reviewed in September 1989.) 512K IBM PC (\$169). Software Publishing Corp., (415) 962-8910.

AppleWorks v3.0. (Reviewed in this issue.) 128K Apple (\$240). Claris Corp., (408) 987-7000.

WORD PROCESSORS

Professional Write v2.1. (Look for review next month.) 512K IBM PC (\$229). Software Publishing Corp., (415) 962-8910.

Q&A Write v1.01. 384K IBM PC (\$199). Symantec Corp., (408) 253-9600.

MacWrite II v1.1. (Reviewed in October 1989.) 1MB Macintosh (\$249). Claris Corp., (408) 987-7000.

WriteNow v2.0. (Reviewed in October 1989.) 512Ke Macintosh (\$195). T/Maker Co., (415) 962-0195.

FINANCE

Money Matters. 512K IBM PC (\$90). Great American Software, (603) 889-5400.

Quicken v3.0. (See examples of how one business uses Quicken in this month's Finance department.) 128K Apple, 256K IBM PC and

compatibles, 512K Macintosh (\$50-\$60). Intuit Inc., (415) 322-0573.

SPREADSHEETS

Excel. (Macintosh version reviewed in March 1990.) 640K IBM PC (\$495), 1MB Macintosh (\$395). Microsoft Corp., (206) 882-8080.

Quattro. 384K IBM PC (\$130). Borland Int'l, (408) 438-8400.

DATABASES

Q&A. 512K IBM PC (\$349). Symantec Corp., (408) 253-9600.

FileMaker II. 1MB Macintosh (\$300). Claris Corp., (415) 962-8946.

DESKTOP PUBLISHING

Publish-It! (Featured in the April 1989 issue.) 512K IBM PC, 512K Macintosh (\$395). Timeworks, Inc., (312) 948-9200.

Springboard Publisher II. 1MB Macintosh (\$200). Springboard Publisher, (612) 944-3912.

COMMUNICATIONS

ProComm Plus. 192K IBM PC (\$99). Data Storm Technologies, Inc., (314) 443-3282.

MicroPhone II. 512Ke Macintosh (\$295). Software Ventures Corp., (415) 644-3232.

RESOURCES

Books:

The Woman's Computer Literacy Handbook, by Deborah Brecher (\$10.95; New American Library, 1986). This handbook explains Brecher's approach to teaching women to compute successfully. Contact Brecher at the Women's Computer Literacy Center, P.O. Box 68, Jenner, CA 95450; (415) 641-7007.

The Woman's Work-At-Home Handbook: Income and Independence With A Computer, by Patricia McConnel (\$9.95; Bantam Books, 1986). Although the technical information is woefully out of date, the other sections are valuable to women interested in starting their own home-based businesses.

Organizations:

LIFT, Inc., is a 15-year-old national nonprofit organization that trains men and women with severe disabilities (including blindness) in computer programming, and then places them in jobs with large corporations across America. Contact: Donna Kozberg, Vice President, Administrative Offices, LIFT, Inc., P.O. Box 1072, Mountainside, NJ 07092; (201) 654-0015.

Mothers' Home Business Network publishes a quarterly newsletter, *Homeworking Mothers*,

for women who want to work and develop careers without leaving their homes and children. Members also receive a copy of *Mothers' Money Making Manual* and several other printed materials for working mothers. Membership is \$21 annually. For a sample copy, send \$2 and a self-addressed, stamped envelope with 65¢ postage to MHBN, P.O. Box 423, Dept. H, East Meadow, NY 11554.

National Association of Women Business Owners

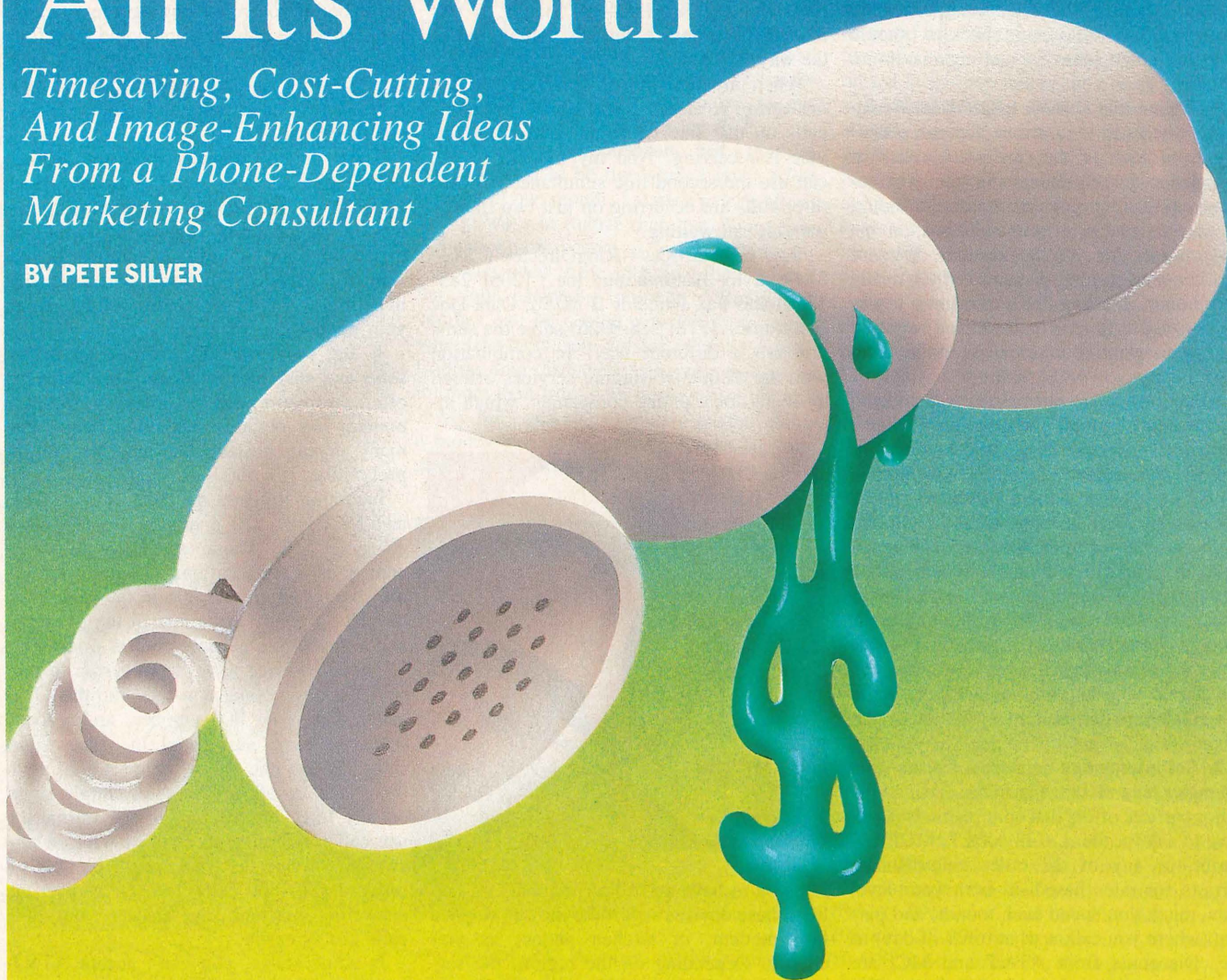
is a networking support group for women business owners. There are more than 3,000 members. A good way to keep up with women's issues and new laws that affect women in business. Membership is about \$160 per year. 600 S. Federal St., Suite 400, Chicago, IL 60611; (312) 922-0465. Call (800) 892-9000 to ask for literature on local chapters.

The Small Business Administration offers a range of services and publications for small businesses, including advice on how to write a business plan and where to go for financial assistance. Check the blue pages in your telephone directory under U.S. Government: Small Business Administration, or contact them at 1441 L St. NW, Washington, DC 20416; (202) 653-6832. ■

Wring Your Phone for All It's Worth

*Timesaving, Cost-Cutting,
And Image-Enhancing Ideas
From a Phone-Dependent
Marketing Consultant*

BY PETE SILVER



ILLUSTRATIONS BY BOB CONRAD

Three factors have combined to offer you better choices—and new money-saving options—in telephone services today.

First, competition between the carriers is intense. America's telephone companies want you! That's the unmistakable message from AT&T, US Sprint, and MCI, the three major long-distance carriers.

Speaker-writer PETE SILVER is the author of 101 Ways to Out-Market Your Competitors and Free Publicity Strategies for Any Professional, Trade, or Business. Based in Gainesville, Florida, he can be reached at 800 MR SPEAKER or on CompuServe (ID: 76466,364). This is his first article for HOME-OFFICE COMPUTING.

Second, telephones themselves have gotten better: They offer more features and better sound quality. And you now have greater choice as to where to buy or lease the equipment. In addition, you can install telephones and add-on equipment, such as voice/data switches, without professional help.

Third, computer software can help you analyze and track your telephone use.

Why are phone companies suddenly courting America's home-based businesses? "Small business is where the growth is, and the residential market has been neglected for years by the carriers," says Jack B. Grubman, an analyst at PaineWebber.

The phone companies know that homeworkers are ordering extra lines for modems and faxes, and that today's homeworkers are capable of talking on one line, checking electronic mail on a second, and sending faxes on a third. From the phone company's perspective, that's simultaneous triple-billing.

TALK TO AN ACCOUNT REPRESENTATIVE

Given the intensely competitive telephone wars, change is the norm for telephone rates and policies. What was true yesterday may not be true tomorrow—particularly when it comes to comparing costs of various carriers. How can you make sense of all of this?

Start a file that includes clippings of key articles in the media, direct-mail announcements from the carriers, and notes from your conversations with the carriers.

As is the case for many other home businesses, my phone bills are my single most controllable expense, and the phone is my most important tool—so I've studied creative ways to make my phone work harder for my business. The following checklist should give you some ideas for getting maximum efficiency from your phone.

1. Get an ally at each long-distance company. It helps to request one account executive from each of the carriers, because as that person gets to understand your requirements and calling patterns, he or she should be able to make recommendations on the best choices for you to consider. When I was choosing a long-distance carrier in my new home, I asked the companies I was considering to fax me their rates. The phone companies want your business—make them work for it.

Sometimes an account executive can bend the rules or eliminate red tape, too. When I needed a new incoming 800 number installed, my account executive was able to get the job done in a mere two hours. Some carriers pay their account executives based on the amount of your bills; and a personal stake in your satisfaction with your phone service can spur your account executive to take very good care of you. In addition, account executives recognize that you might leave their company any day. Because you can choose your long-distance carriers in the deregulated phone market, you are in the driver's seat.

2. Get information on discount plans from the major long-distance carriers. Each of the major carriers offers discount plans. But you have to ask for them. Call AT&T, MCI, US Sprint, or any of the other long-distance carriers for rates based on both your level (how much you spend each month) and pattern (where you call at what times of day) of use. Discounts from AT&T and MCI are based primarily on volume; US Sprint discounts are based on the time of day you call. And you may be able to get special rates to preselected cities during specified hours each day.

Don't just ask the companies to send you literature; insist on being connected with an account executive who will take the time to discuss your particular requirements. If you run into roadblocks, as I often have, call the company headquarters (AT&T's Executive Department in charge of long-distance service: [201] 221-2000; MCI Executive Headquarters: [202] 872-1600; US Sprint headquarters: [816] 276-6000).

3. Eliminate unnecessary dedicated lines. Voice/data switches obviate a dedicated line for your fax or modem. I use the Versa-Link ATX-300 (\$395; Multi-Link, voice [606] 233-0223; fax [606] 252-1632) for this pur-

pose, and it works well. (For more on this product category, see "Avoiding the Cost of a Second Line" in this issue.) I run my home office with just two lines. When I'm away, the first gets forwarded to my answering service, so the second is free for fax transmissions. When I'm in the office, the second functions as my rollover line, my modem line, and my fax line—all thanks to this modem-sized device that sits politely out of the way.

When my first line is forwarded to my answering service, I can still make outgoing calls on that line while the answering service is receiving. And my modem or fax can use the second line simultaneously—so three calls are occurring on just two lines—without call waiting.

Two new devices—RingDirector (\$89–\$149; Lynx Automation, Inc.; [206] 285-1754) and Fax Director II (\$250; Data-Doc Electronics; [512] 928-8926) solve the same problem a different way. In combination with the distinctive-ringing services offered by many local phone companies, which al-



low you to have up to four numbers on one line, these devices will route the call to your fax, modem, or kitchen phone, as you choose. Depending on the region, the service is called Custom Ringing (US West), Personalized Ring (Southwestern Bell), Identaring (Bell Atlantic), Call Identification Services (Ameritech), or RingMaster (Bell South).

Here's how it works. If you subscribe to your local telephone company's distinctive-ringing service, you will be assigned up to four numbers. For example, you could designate 555-1111 as your personal number; 555-2222 as your business number; 555-3333 as your modem number; and 555-4444 as your fax number. When the call comes in to your home, the ring pattern is different for each number. Your personal number sounds like your usual ring; your business number has two short rings; your modem number has two short rings followed by a long ring; and your fax number has a short-long-short ring.

RingDirector, about as big as a postcard and an inch thick, automatically and instantly decodes the incoming rings and sends the call to the proper destination. If you use an off-premises answering service, you can even use call forwarding (sometimes called FastForward) on just your business number.

The RingDirector and Fax Director II are very good if you're not getting a lot of calls; remember that although you could have four telephone numbers, there's still only one line, so only one function can occur at a time: You cannot talk and receive a fax simultaneously.

Local phone company rates for distinctive-ringing services vary; generally about \$4 to \$5 for one line per month and slightly less for the second is common. It's a lot less expensive than having two numbers if you want to separate your home and work life but still get double (or quadruple) duty from your phone line.

4. Get your own 800 number for better sales and customer relations. The ability to offer customers and prospects a toll-free number has obvious marketing value, but many people mistakenly think the cost is prohibitive. It's not.

Incoming toll-free numbers from AT&T and MCI cost \$20 a month; US Sprint is charging \$10. These are base rates, of course; calls are additional. Figure per-minute charges of around 20¢ in the middle of the day, a penny or so less in the evening, and a nickel less at night and on weekends.

Though service varies from carrier to carrier, the basic concept works like this: The caller dials your 800 number, and a local line you have designated in your office rings. So no one has to come out to your home and install anything—it simply rings on any line you specify. If you ordinarily use call forwarding to connect with an answering service, as I do, you'll be able to forward your 800 calls, too. Of course, an answering machine can answer your 800 calls just as easily.

In some states, you can't accept AT&T toll-free calls from within... the state, so you need a separate toll-free number. When I lived in Connecticut, I had an AT&T 800 number but couldn't receive calls from Connecticut; I had to either provide a local number or get a separate toll-free number from Southern New England Telephone, good only within the state—which, ironically, cost more than the national toll-free line.

There is usually an installation charge of \$50 to \$75 for each 800 number; however, MCI, AT&T, and US Sprint were waiving that charge at the beginning of the year in an effort to sign up more accounts. How long they will do so is unclear. You can list your 800 number for free in the *AT&T 800 Directory* (the only one in the country).

If you worry that your bill will be too big, don't put the 800 number on your business card—hand it out selectively when you want

someone to call you or you want to impress someone.

To save on your outgoing calls, you might want to consider a Wide Area Telephone Service (WATS) line. PRO WATS from AT&T, MCI's PRISM PLUS, and US Sprint's DIAL-1 WATS are WATS plans that offer substantial discounts based on the volume of your calls.

5. Cut down phone costs when you travel. Stop calling your own number collect—it's costing you plenty! Arm yourself with telephone credit cards. They are free, convenient, and can save you money. Cards from MCI and US Sprint give you access to their systems through toll-free 800 numbers, so you can often avoid hotel surcharges. If you are placing a credit-card call from your local calling area—say, from a pay phone downtown or from a colleague's home office—MCI doesn't tack any surcharges onto the call. It costs you exactly what it would cost from your home-office phone.

You may even want to have a toll-free number to use privately when traveling or for special purposes. For example, many hotels tack huge surcharges onto calls made from your room—but some don't charge for toll-free calls. So if you're calling your home from hotels frequently—or if you're calling back to your office collect or charging to a credit card—an 800 number will be less expensive. I estimate that if you travel five days a month and make three long-distance calls a day, the 800 number will be cost-effective. It's also a lot faster and simpler because you don't have to talk to an operator or enter a string of numbers.

One way to really run up a big bill in a hurry is by calling information at 50¢ or 60¢ a pop, which you're more likely to do when traveling. So carry a printout of important numbers with you. I use *SideKick's* Notepad for keeping track of frequently called numbers, and I print out the list using my laser's 17-pitch setting each time I travel. I usually carry about 900 phone numbers with me on just a few trimmed sheets of paper. This is a better than a phone book because it's always current, it doesn't need to be erased, and it's the same resource I use at home.

Many business travelers are now using electronic organizers, such as the Sharp Wizard and the Psion Organiser, to keep an up-to-date list of frequently called phone numbers.

6. Put a phone where your key customers are. If you're located in, say, Nashville but have a lot of business in Los Angeles, you can install your own "local" phone number in Los Angeles. It's called RCF, or remote call forward (a generic name offered under different trademarks by different companies), and it costs about \$16 a month, plus your calls. The caller pays for the connection to your Los Angeles "office," and you pay the connection between Los Angeles and Nashville—with discounted daytime

rates, about 20¢ a minute. You maintain a local presence in your marketplace and provide a convenient way for customers to reach you. You get a free listing in the local white and yellow pages too.

The cost of RCF is slightly less than that of an 800 number, so it only makes sense if you really need a strong presence in a local market. Stockbrokers who live in rural areas but who want a New York image, for instance, are likely candidates for RCF.

7. Reduce your car-phone bill. My car phone ceased to be fun when I got a \$540 phone bill one month. I started paying attention to ways to reduce that cost. Since you pay when you receive as well as when you call, you need to be selective about giving out your car-phone number. "Roaming" charges can be costly; you get them when you make calls from outside your local area. Calling long-distance is also very pricey—a lot more than from your home-office phone.

My MCI account executive passed along a money-saving tip that may work in your area as well. Some cellular companies allow



you to dial 800 numbers without charge. Calls to the 800 connection number for MCI's calling card don't appear on my car-phone bill, so I make cellular calls without paying anything over the direct-dial rates from my office phone. It is certainly less expensive than paying expensive all-cellular charges for the same calls.

Always tell people you're calling from a car phone. It works wonders on secretaries that ordinarily keep you on hold—and it can also hurry the conclusion of a conversation. And remember that nothing confidential should be discussed on a cellular phone: People with radio scanners (and they are out there!) can clearly hear your entire conversation.

I recently discovered that I could turn my

LONG-DISTANCE CARRIERS

AT&T, (800) 222-0400
MCI, (800) 444-5555
US Sprint, (800) 877-4646

car phone into a mobile cellular phone. On a recent business trip, I was able to rent a hand-held cellular phone from my car-phone dealer for \$10 for the week. It proved to be a great efficiency tool, though the calls cost more than local car-phone calls. The dealer assigned my car-phone number to the portable unit, and then reconnected it when I turned in the portable at the end of my trip.

8. Save time by dialing calls with your modem. Anyone who uses a telephone often will save time by dialing via modem. Searching an on-screen database is generally quicker than thumbing through a dog-eared Rolodex; and punching a key or clicking a mouse is certainly quicker and easier than punching 11 buttons on the phone.

I use *Hot Line*, which provides thousands of phone numbers in database format for instant dialing, without leaving whatever I'm doing at the time. For example, if I'm doing word processing or bookkeeping, I hit a hot key to bring up *Hot Line* and type "SULL" when I want to call HOME-OFFICE COMPUTING senior editor Nick Sullivan. In less than a second, my modem dials Nick—or I can hit the F10 key and Nick's entire *dBase*-compatible record will appear on my screen. When I hit Escape, everything vanishes and I'm back in word processing or bookkeeping.

Besides your personal directory, *Hot Line* (\$99; General Information Company; [206] 483-4555) gives you access to 10,000 telephone numbers for the nation's largest corporations, government agencies, organizations, associations, colleges and universities, radio and television stations, and newspapers.

Additional specialized electronic telephone directories that can be used with *Hot Line* include the following: *Advertising, Public Relations and Media*; *America's Business 25,000*, an expansion of the basic 10,000 listing directory; *Colleges and Universities*; *Computer and High Tech*; *Department of Defense*; *Finance*; *Toll-Free Numbers*; and *Travel*. These directories range from \$59 to \$449.

Of course, you can use a wide variety of programs to make phone calls through your modem. *Expeed* (Eighty/20 Software) and *SideKick* (Borland) for MS-DOS computers, and *Focal Point II* (TENPointO/Media-genic) for Macintosh, to name a few, are excellent examples of phone-dialing software that also includes calendar and note-taking functions.

9. Use a feature-laden phone instead of paying for phone-company services. Local phone companies offer speed dialing, three-way conference calling, and even auto redial as expensive options you pay for each month. If your present phone doesn't have these capabilities built in, buy a new phone rather than paying the phone company for the service. You can find full-featured phones for less than \$100. For example, my

Panasonic KX-T3155 (about \$85 at discount) is a two-line phone with 48 auto-dial stations, a speakerphone, auto redial, and three-way conference calling.

10. Measure your phone use and track billable costs. There are several ways to measure your phone use and log your billable calls. Billing codes are free from MCI if your bill is over \$200 a month; Sprint offers them for \$5 a month. When you're calling client number one, say, you enter an accounting code before making the call. When the bill comes, you know exactly how much each client's telephone costs were and you can submit the bill for reimbursement.

Here's how accounting codes work: After you dial your long-distance call, you will hear a tone. Your carrier's computer waits for the two- or three-digit accounting code, and then the call is completed as usual. On your monthly bill, all calls are subtotaled by accounting code. If you elect to use accounting codes, you will always have to enter the code before your call is connected.

Some software packages—*Hot Line* and *Focal Point II*—will create telephone logs of outgoing calls, which you can use when making bills.

Another approach is to use different credit cards. A consultant I know carries three credit cards: one for client-reimbursable calls; one for non-tax-deductible personal calls; and one for all other business calls. It simplifies matters later when he's trying to figure out who to charge for each call.

A phone feature that helps keep phone calls (and phone bills) in check is a display that shows the number called and the elapsed time of a call. It's frequently amazing to me that calls last as long as they do—and the timer is a subtle reminder to finish calls when I'm getting long-winded.

11. Ask your local phone company about special deals. Your local phone company might have special deals that it doesn't advertise. For example, those high installation costs are probably payable over three or four months without any interest. Just ask.

Also, study billing peculiarities in your area: You may be able to reroute calls to save money. For instance, it may be cheaper to call long-distance out of state than in-state. Before CompuServe had a free local node in Gainesville, Florida, it was cheaper for me to call Albany, Georgia, to access CompuServe than to call Jacksonville, Florida—even though it was more than twice as far away. Very often, intrastate calls cost more than interstate. At all times, it's cheaper for me to call from Florida to Connecticut—about 1,200 miles—than it is to call from New Haven to Hartford—about 50 miles. Similar phenomena seem to hold true throughout the nation.

EVALUATING CARRIERS

Most people find the process of choosing a long-distance carrier so confusing that they stay with AT&T or flip a coin. In some

cases, if you don't specify a carrier yourself, your local phone company will assign a long-distance carrier at random.

It is difficult to make a choice, because so much depends on your calling patterns. But there are three categories to focus on when you are making your decision.

Most people rank reliability over price. A carrier you've never heard of may not be staffed well enough to repair lines that go bad. Ads from US Sprint proclaim that its fiber-optic network didn't suffer during the 1989 Bay Area earthquake or Hurricane Hugo—even though AT&T was out of service. In general, you can count AT&T, MCI, and US Sprint among the most reliable carriers.

Monthly rates are just one factor in the overall pricing scheme. What about long-

distance charges to the places you ordinarily call? Are they measured by the minute or fraction of a minute? How long are your average calls? What about credit-card charges? Is there a surcharge each time you use it, or are there times it doesn't cost extra to use the credit card?

Finally, every carrier has different policies regarding billing codes, credit-card use, and other areas that may make a difference to you.

What's the bottom line? Challenge and opportunity. It is a challenge to decipher the jargon and rates of the phone marketplace today. But if your phone costs are a significant portion of your overhead, it's an opportunity to get better service, often for less money, and improve your communications with the rest of the world. ■

HOW HOMEWORKERS USE THE TELEPHONE

BY TOM MILLER

The telephone is important to all homeworkers, but even more so for those who are self-employed homeworkers. Their phone bills are higher than those of corporate homeworkers, usually by a factor of 25 percent. And self-employed homeworkers say they intend to buy more equipment in the future than corporate homeworkers do.

Over the last four years, Link Resources' National Work-at-Home Survey has tracked increased ownership among all homeworkers of products such as answering machines and cordless, two-line, and cellular phones—as well as custom-calling services such as call waiting and call forwarding. Buying trends for 1990 suggest no abatement in telephone buying or use.

Outlined below are results from the 1989 Work-at-Home Survey. Data reflect responses from 600 homemaker households drawn from a total of 2,532 U.S. households interviewed in the spring of 1989. The figures project a total universe of 26.8 million part- and full-time homeworkers.

Telephone Sets. Self-employed homeworkers have an average of 3 telephone sets per household; corporate homeworkers have 2.8 sets.

Telephone Lines. Homemaker households average 1.3 telephone lines (as opposed to sets) per household. Corporate workers are more likely to use a second line for data (fax or modem), while the self-employed are more likely to use a second line for business (voice) calls.

Cellular Phones. At least 1.7 million homemaker households use cellular phones. Another 506,000 households are "very likely" and 1.6 million households are "likely" to buy cellular phones in the next 12 months.

Of current cellular-phone owners, 56 per-

cent are self-employed. Obviously, cellular phones are similar to answering machines and call forwarding in helping the solo worker stay on top of prospective business calls.

These figures are conservative, because numerous "high mobility" workers who use cellular phones don't think of themselves strictly as homeworkers.

Custom-Calling Services. More than 9 million homemaker households subscribe to custom-calling services, paying an average of \$8.20 per month for the service(s).

Calling Cards. More than 14 million homeworkers use calling cards. Nearly 40 percent of these callers get reimbursed to some extent for business calls they make from home. The self-employed are more likely to get reimbursed for business calls than corporate homeworkers, presumably because they are more careful about tracking their business expenses. (Federal government employees are prohibited from getting reimbursed for phone calls made from home.)

Phone Bills. The average phone bill for all homeworkers is \$77 per month, of which \$45 is for long-distance calls, but some homemaker categories have significantly higher bills.

Fax users are the biggest spenders, averaging \$129 per month in phone bills (\$92 in long-distance calling). People who own or plan to buy a fax machine already have high phone bills; in other words, fax use does not necessarily increase their phone bills. It may in fact reduce them because people won't need extended long-distance explanations.

Those with two or more phone lines for business purposes average phone bills of \$127 per month (\$80 of it on long-distance calling).

Modem users once had phone bills as big or bigger than today's fax users', but now average closer to the norm (\$77 per month), probably reflecting the increase in toll-free and local access numbers (through Tymnet and Telenet) for electronic-mail services and data providers (such as CompuServe and Prodigy).

TOM MILLER directs and analyzes the annual National Work-at-Home Survey, conducted by Link Resources. Miller works from his home in Ithaca, New York.

Avoiding the Cost of a Second Line

Fax Switches Let Phones Share One Line

BY DIANNE BREEN

When Rosanne and Vance Tyler of Marietta, Georgia, saw an ad for a fax switch, they thought it might be the answer to their telephone needs. The Tylers needed to purchase a fax machine for their cleaning company, Alliance Professional Cleaning, but didn't think they would use it enough to warrant paying for a dedicated telephone line. If the Tylers added a fax switch to their line, the ad said, the fax machine could "share" the line with the phone.

"It sounded like a great idea," said Rosanne. "So we bought the fax machine and ordered the switch at the same time. When the switch arrived, we hooked it up and told our clients they could start sending faxes. But we soon discovered that the switch didn't work. When we called the company that sold us the switch, they talked us into upgrading to a more expensive model, which we did. But that one didn't work either."

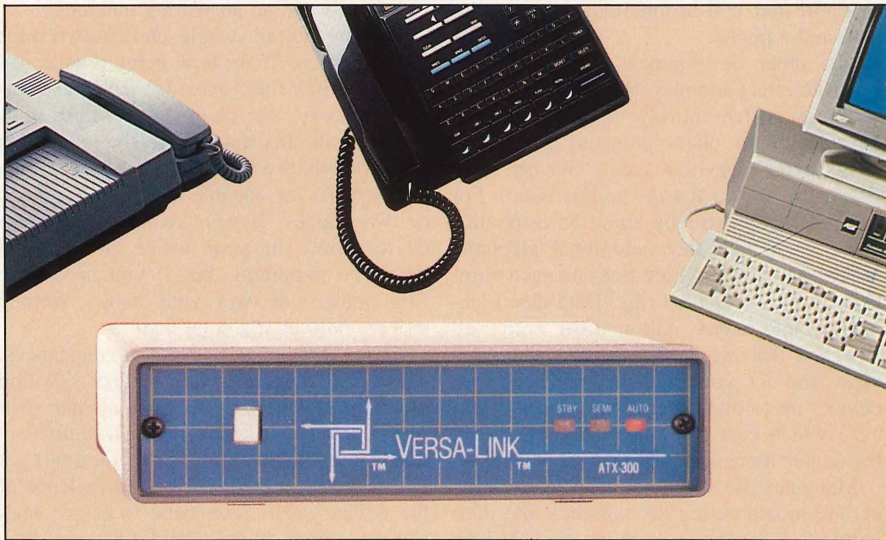
"To make a long story short," added Vance, "we couldn't use our fax machine for two months. We tried and returned three different fax switches before we found one that worked for us. If we had it to do over again, we would do more research before we order, and save ourselves a lot of time and trouble."

The Tylers' ordeal is not uncommon. There are more than 70 companies selling switches that cost anywhere from \$99 to \$499. Trying to decide which fax switch to buy can be frustrating and confusing.

WHY BUY A FAX SWITCH?

Many home businesses are run by one or two people who are reluctant to add more phone lines. Mike Hendrix, a Los Angeles city government employee, bought a fax switch more than a year ago. "I needed a fax machine but had difficulty justifying the addition of another phone line for that sole purpose. I now have a second phone line with a fax switch that serves a modem, a fax machine, and a telephone."

While fax switches solve a lot of problems for some people, they also pose a few problems. Some callers find them annoying, since some fax switches require extra work



The Versa-Link ATX-300 (bottom) lets three devices share one telephone line.

from the caller (pressing a button to route their call to either the phone or the fax, for example). Others might resent speaking to a computerized recording asking, "May I help you?"

HOW THEY WORK

Most switches answer the phone and "listen" for tones (a half-second beep followed by a three-second pause, called a CNG tone) emitted by sending fax machines. All Group 3 fax machines send these tones when in automatic dialing mode (dialing directly from the fax unit, without using a separate phone). If the fax switch "hears" the tone, it sends the call directly to the fax machine, bypassing the phone. If it doesn't detect the tone, it assumes the call is not a fax and routes the call to the phone. The ring you'll hear comes from the fax switch, not from the phone company.

Group 1 and 2 fax machines (the older models sold primarily before 1982), and Group 3 units that only offer manual dialing, don't emit CNG tones, so fax switches employ a different procedure to send these calls to the fax machine. Usually, the caller or receiver must dial a specified number to route the call to the fax machine.

Thus, some switches combine CNG detection with instructions that ask the caller for a response. For example, the caller might hear a recorded message such as "Hello. This is XYZ, Incorporated. If you'd like to send a fax, please press 1. If

you'd like to speak with someone, please press 3."

A few models require a voice response. One unit, the FaxSaver, uses voice detection as the primary means of determining if the call is a fax. The switch answers all calls with a digital recording that says, "Hello. May I help you?" If someone replies, no matter what they say, the call will be sent to the phone. If there is no voice reply, the switch assumes the call is a fax and routes it accordingly.

A few fax switches are "ring counters" (sometimes called ring-through devices), which means they count the number of times the phone rings. If a call isn't answered within a set number of rings, the switch routes the call to the fax. If you answer the phone, and it happens to be a fax, all you do is push a number (or a sequence of numbers) on your phone to route the call to your fax machine.

BUYING TIPS

If you're thinking about buying a fax switch, the first thing you should establish is exactly what you want the switch to do. Do you want to hook up a fax, a modem, an answering machine, or all of these? Will the line with the switch have just one phone in your office, or do you want to be able to access that line from any phone in your house? Do you want the switch to be undetectable to callers? The answers to these and other questions will help you determine

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which fax switch to buy.

There are a couple of innovations just hitting the market that may affect your purchase decision. For those who don't want to hook up their modems or fax boards to a fax switch because they don't want to leave their computers running around the clock, there's a new switch that will turn the computer on with just a phone call. This may make some people lean toward purchasing a three-port model that will handle a fax, a modem, and the phone rather than just a two-port that will accommodate just a modem and a phone.

The other development could have the opposite effect and may eliminate your need for a fax switch entirely. In some areas of the country the phone company is offering custom-ring services (see *"Wring Your Phone for All It's Worth"* in this issue). For a small charge (usually about \$5 a month), you can add up to three additional telephone numbers to your existing line and each number will have a distinct ring. Data-Doc Electronics and Lynx Automation both sell switches that work with custom-ring services and let you hook as many as four devices up to one line. These "line switches," which cost about \$99, will ring only the device associated with each number.

Many new fax machines entering the market are incorporating fax switches into their units. Fax machines such as the Toshiba 3200 and 3400 and the Murata 1850 and 2000 will perform the same function as a

fax-switch device, routing incoming calls to the appropriate place. The switching is usually invisible to the caller.

Once you have a clear idea of how you want to use the fax switch, you can begin to evaluate individual units. You'll want to ask some of the following questions:

- How does the switch handle automatically dialed calls? The majority of fax calls are automatically dialed, so this will probably be the standard operating mode for the switch.

- Can I add an answering machine?

- Does the fax switch send its own rings to my phones? If so, how many phones can the fax switch ring? Most fax switches actually "answer" the phone. Any future rings (either to the fax machine or the telephone) are generated by the fax switch—and some fax switches are capable of ringing only one or two phones. If your switch is powering devices only in your office, it probably won't be important, but if you need it to ring phones all over your house, ringing power could be a crucial feature.

Phone companies, in most circumstances, say they'll ring up to five devices. To find out how many devices a fax switch will ring, you need to know its ringer-equivalent number, or REN. (Make sure you don't get this confused with the ringer equivalence of the device itself. You need to know what ringing signal it will send out, not how much it requires itself.) The ones we reviewed had RENs ranging from 2.0 to 5.0.

- If someone picks up an extension phone while a fax is being transmitted, what happens? Is the fax transmission protected from interruptions? What will the person on the extension hear? With some units you'll get silence, while others will relay a busy signal to inform you that the line is in use.

- Will the fax switch work with pulse-generating telephones—either mine or those of callers?

Most switches will have a few of these features; very few will have them all. In the end, you'll have to decide whether the features are worth the cost.

MORE TIPS

Not long ago, the only place you could find fax switches was in catalogs. Now, however, office-supply stores and computer stores are stocking them. Since most of the companies that manufacture the switches are small, with just a few products, it's important to shop carefully.

Customer Service. Technical support is important with fax switches, just as it is with most other high-technology products. You should know in advance what you'll have to do to install the switch and who you can call if you run into trouble.

Return Policy. It's not always possible to know ahead of time whether a fax switch will work with your particular phone system. You'll want assurance that you can return the switch if it doesn't meet your needs.

Upgrade Policy. Phone-line switching devices are constantly changing. Several manufacturers will upgrade your switch for free or at a discounted rate.

INSTALLING THE SWITCH

To install a switch on a single line with a single phone, you usually just have to plug it in. But installing a switch that rings all the phones in your house can be complicated.

I installed one switch in a house that had two lines sharing one cable—probably the most complicated installation situation. To do that, I had to go to a point close to where the phone line comes into the house, split the lines, install the switch on the office line, and then reroute the wires for that line back into the main cable that fed into the rest of the house. I made several trips to Radio Shack, to buy a book on installing telephones and get the tools and wires I needed, but the actual wiring took only an hour or so. If you're not comfortable doing your own telephone installation, hire a professional to install the switch. To ring other phones, the fax switch must be installed between where the phone line enters the house and the other phones.

Not all switches are this complicated to install. If you use one that "rings through" (doesn't intercept the phone company's ring) or if you only want the switch to direct calls into one room of your house, installation should take only a few minutes. ■

FAX SWITCHES TO CONSIDER

With more than 70 fax switches on the market, it's hard to know where to begin when you want to buy one. To help you get started, we've compiled descriptions of a few models we think are reliable and backed by excellent support. This list is by no means complete, since we tested only a few models.

Fax Director II

This is a two-port switch, which means that it can handle a phone and a fax or a phone and a modem. If installed before other phone devices, the Fax Director has enough power to ring up to seven phones. The switch is undetectable to the caller, except that the rings it generates sound weaker than the phone company's rings. Data Doc sells a variety of computer-related products. Support is excellent. (\$250; Data-Doc Electronics, Inc., [512] 928-8926; [800] 328-2362; [800] 432-9347, for a free demonstration)

Versa-Link ATX-300

This switch has three ports. You can place your phone, fax, and modem on one line. This device will ring up to five phones. Technical support couldn't be better; these people take difficult installations as a personal challenge and will walk you through every step. If you're having problems, they will perform remote diagnostics via your phone line. Product updates are free. (\$395; Multi-Link, Inc., [606] 233-0223; [800] 535-4651)

Fax Line Manager

The Fax Line Manager is a four-port device, with an auxiliary port for an answering machine. If the answering machine picks up and gets no voice response, the call is then switched to the fax. Otherwise, the message can tell callers which number to dial to send a fax. During normal operation, the switch is undetectable to the caller. Certain features, such as the codes to route manual faxes, are programmable. The ringing signal is strong enough to power five phones. Support is great. (\$299; Technology Concepts, Inc., [415] 349-0900)

ExtraLine

ExtraLine has three ports—for a phone, a fax machine, and a modem. It can be controlled from any phone in the house or from a remote phone. Unlike most fax switches, ExtraLine doesn't answer the phone and take over from the phone company; thus, it never has to ring the phone. That's a plus, since neither you nor the caller hears a funny ring. ExtraLine's ring-counting function can be used to automatically answer the fax machine after a predetermined number of rings. If you're expecting a fax, you can just let the phone ring. ExtraLine is a sturdy and reliable product that works best for people who get more voice calls than fax calls and who are in their offices most of the time to control the device. (\$199; Lynx Automation, [206] 285-1754)

CD-ROM: Is It for You?

*An Update on This Developing Technology, Plus Descriptions of
CD-ROM Software and CD-ROM Drives*

BY JON PEPPER



The HeadStart LX-CD is sold with a built-in CD-ROM drive.

Hard-disk drives aren't bottomless pits. They generally are big enough to hold all the programs and files you commonly use—but are less likely to have room for all the graphics a desktop publisher might want or all the information a researcher might need. When people want access to large libraries of information or graphics, they usually go on-line and search a vast electronic data-

base, such as CompuServe, Dow Jones News/Retrieval, or Dialog. Now, however, the relatively new optical storage method of CD-ROM may change the way people deal with volumes of data.

Once viewed as a “gee whiz” technology that would someday deliver multimedia en-

JON PEPPER is a coauthor of the upcoming book *WordPerfect 5.1* (Que Corporation).

cyclopedias with great music and art, CD-ROM is now seen as a practical way to deliver large amounts of data—much of it statistics—to business users. Of course, CD-ROM (Compact Disk–Read Only Memory) is a *read-only* medium; users cannot write their own data to it.

CD-ROM disks, which play on CD-ROM drives and are identical in appearance to audio CDs, can hold about 550MB of data

(in addition to an index of that data). That equals about 1,500 floppy disks, 250,000 pages of text, 5,000 scanned images, or one hour of sound. For example, Grolier's 21-volume *New Grolier Electronic Encyclopedia* takes up less than 30 percent of a CD-ROM disk. By running search-retrieval software on your computer, you can easily search through these megabytes of data.

CD-ROM has suffered from a chicken-and-egg problem. Since there haven't been enough good CD-ROM titles available to justify the \$500 to \$1,000 it costs for a drive, software publishers have been reluctant to develop for a small market. According to most industry estimates, there are now about 300,000 drives in use. Thus, CD-ROM has so far been confined to niche markets, such as libraries, financial firms, and in-house publishing departments of large corporations.

HEADSTART, TANDY, IBM GO CD

Recently, however, HeadStart Computers introduced two MS-DOS computers with internal CD-ROM players. These systems are the first to make CD-ROM truly cost-effective for the general business market. The PC-compatible Headstart LX-CD includes

stereo headphones, a 40MB hard drive, a 3.5-inch floppy drive, a VGA card, a mouse—and a CD-ROM drive—for a list price of \$1,995 (without monitor). It includes a bundle of conventional software and several CD-ROM titles: the *New Grolier Electronic Encyclopedia*, Microsoft *Bookshelf*, *Hot Line Two* (a telephone-management system), *PC Globe* (a world atlas), 30 games, and others. The HeadStart III-CD (\$2,995, without monitor) is a 286 with an even more comprehensive software library.

Tandy, which has sold CD-ROM software and external Hitachi CD-ROM drives for more than a year, now sells internal Hitachi drives (\$895) through its Express Order Hardware program. The drives, which can be installed by the user or dealer, fit into the 5.25-inch disk-drive bay on a range of computers: the 1000 SL, TL, SL/2, and TL/2; the 3000 NL; and six systems in the 4000 line. Tandy also sells an external Hitachi drive (\$1,095) for the 5000 MC, the company's MicroChannel system.

The CD-ROM bandwagon should start rolling faster if and when IBM introduces its long-rumored computer with a built-in CD-ROM drive, expected some time this year.

As it is, however, there are titles now

available that could be useful to your business, no matter what field you work in (see "CD-ROM Software Sampler"). You can buy application software on CD-ROM (it's less expensive and more manageable than a bunch of floppy disks) or get reams of statistical data, thousands and thousands of clip-art images or photos, hundreds of typefaces, maps of the world, and a set of reference tools for writers.

AN ALTERNATIVE TO ELECTRONIC DATABASES

If you consistently research in one field, CD-ROM data libraries can be a cost-effective alternative to on-line databases. With an on-line database, you generally pay a start-up fee, a search fee (which can run upward of \$100 an hour), and often a fee for printing out documents. With a CD-ROM library, you escape the time pressure of paying by the hour—assuming, of course, that the database you're interested in is available in CD-ROM format.

On-line databases don't necessarily have more current data. CD-ROM disks are updated at regular intervals and sent to subscribers. In this sense, you are not buying a product as much as you are subscribing to

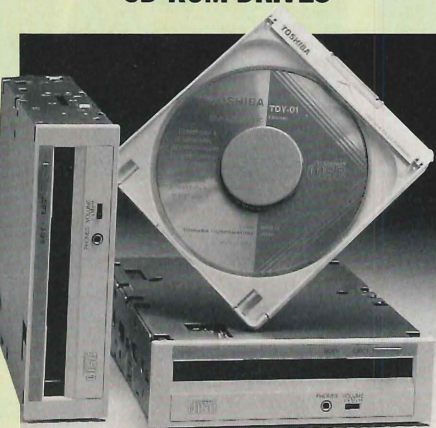
CD-ROM DRIVES

In order to run CD-ROM software, you need to install a CD-ROM drive on your computer. (The drives are sometimes referred to as readers or players.) These units plug into your computer and allow you access to the data encoded on the disk. External, internal, and now portable units (the CDR-35 from NEC) are available. Prices range from about \$500 to over \$1,000 for the most feature-laden units. Most of them work with either the Mac or the PC; you simply order a different interface kit to make the connection to your system.

Manufacturers of CD-ROM drives usually provide software that automatically installs the necessary operating-system extensions so that your computer will recognize the CD-ROM unit as one of your disk drives. For example, if you have an MS-DOS computer with a hard disk named C, you can make your CD-ROM drive D. Typing "D:" at the DOS prompt would access the data on the CD-ROM drive.

Most current CD-ROM models are relatively close in terms of performance. One feature to look for is an audio jack—some drives have them, and some don't. If you connect headphones to the jack, you can play audio CDs on the CD-ROM drive when your computer is on. An audio CD player, however, cannot be used as a CD-ROM drive.

Access speed on CD-ROM drives (about 500 ms) is considerably slower than on hard-disk drives (from 18 to 40 ms). Despite the fact that CD-ROM drives operate more slowly, there's no doubt that they provide a



Toshiba's XM-3201B (top) is a half-height CD-ROM drive that operates both on its side and lying flat. The Toshiba XM-3201A is a stand-alone CD-ROM drive packaged with all necessary software and hardware.

much faster way to search for data than leafing through a hefty book.

Following are descriptions of CD-ROM drives from the major vendors:

NEC Intersect CDR-35 (NEC Technologies; for IBM PC and compatibles, \$794; Macintosh, \$694).

The CDR-35 weighs just over two pounds and can be attached to virtually any PC and many laptops. A \$79 battery option lets the CDR-35 be used in remote applications with a laptop, making it the only truly portable drive currently available. An audio jack allows playback of audio CDs.

NEC Intersect CDR-77 (NEC Technologies; for IBM PC and compatibles and Macintosh, \$1,298).

This external drive includes two RCA stereo output jacks. An internal version, the Intersect CDR-80 (\$899), is also available, and is designed to fit into a PC or PS/2 with a 5.25-inch drive-mount slot. Stereo output jacks are optional on the CDR-80.

Sony CDU-7101 (Sony Corp.; for IBM PC and compatibles, \$1,095).

The CDU-7101 is a compact, half-height unit that comes with an interface card and cable. It can play back audio CDs. A version without audio capability (the CDU-610001) is available for \$895. Sony also makes an internal unit (Sony CDU-510), which lists for \$895, including interface card and cable.

Toshiba XM-3201A1 (Toshiba America Information Systems, Disk Products Division; for IBM PC and Macintosh, \$970; for IBM PS/2, \$1,200).

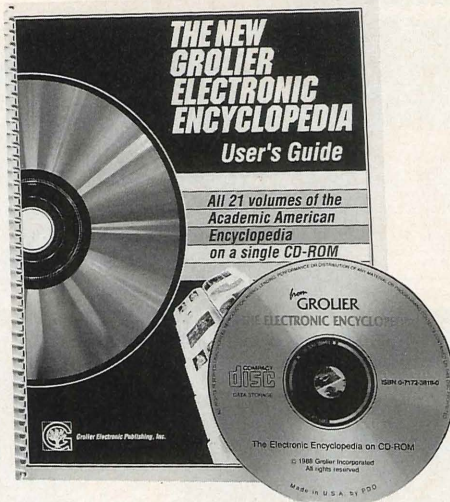
This external, stand-alone drive is attractive and compact. It has an audio output jack. It's a reliable, high-performance product. An internal version is also available.

an electronic-information service. For instance, Grolier's electronic encyclopedia is refreshed annually with about 3,000 new entries. And some of Lotus's *OneSource* CD-ROMs, which deliver a variety of corporate, banking, and other business-related information, are updated weekly and delivered to users by overnight courier.

SEARCH SOFTWARE

In addition to the setup software, each particular CD-ROM package comes with its own search-and-retrieval software, which lets you search through volumes of data at blinding speed. Rather than scanning megabytes of data to find keywords, as a hard-disk searcher would, retrieval software scans an index of the disk's contents. A typical search through 550MB takes a mere one to two seconds.

For example, when using Microsoft's *Small Business Consultant* CD-ROM, you might enter keywords such as "franchise licenses" or "inventory control." The



The 21-volume New Grolier Electronic Encyclopedia takes up less than one-third of a CD-ROM disk.

search software will display a list of all entries on these topics. You can then read

what you want and paste portions into your word processor to print out.

To search the *New Grolier Electronic Encyclopedia*, you type a word, words, or a phrase, such as "presidential candidates, not Republicans." The titles of all articles in which the words appear will be displayed on-screen. Upon selecting and opening a specific article, the user is free to move from one article to another, or to start another search on any item of interest.

SOFTWARE BEFORE HARDWARE

In trying to determine the potential benefits of adding CD-ROM to your system, remember the basic rule of thumb for any computer purchase—software before hardware. If there are no CD-ROM software titles that can help you do your job, even the least expensive CD-ROM drive makes no sense. However, if you can find even a single title that makes sense for you, then the price of adding CD-ROM could be a wise business investment.

CD-ROM SOFTWARE SAMPLER

The CD-ROM software titles described below were chosen because of their potential appeal to general business users.

More information on the listings here, plus many other software titles, can be obtained from Compact Disk Products ([212] 737-8400, [800] 634-2298). This mail-order company sells a wide range of CD-ROM titles, including the *CD-ROM Sourcedisc* (\$79), which contains listings of CD-ROM products.

Computer Library (Ziff Communications Co.; for IBM PC and compatibles; \$765 annually).

This is a useful collection of data available for anyone with an interest in the computer business. *Computer Library* holds the full text of 30 computer publications and abstracts from over 100 other computer and business journals and papers. If your business requires that you follow the news of the computer industry, there is no better source than this one. Updated monthly.

The Guinness Disc of Records 1990 (Pergamon Compact Solution; for Macintosh; \$99).

A multimedia version of the *Guinness Book of World Records*, this CD-ROM adds pictures, sound, and animation to the famous text. There are more than 20 animations showing various records being broken, 300 color photos, and music and sound effects. It's not a good enough reason to buy a CD-ROM drive, but it's loads of fun if you've already got one.

Image Gallery (NEC Technologies; for IBM PC and compatibles and Mac; \$399 for locked version; \$899 for all images).

Image Gallery contains more than 3,000 professionally drawn images in about 20 different categories for sprucing up desktop

publishing, word processing, graphics, and any type of business presentation. Categories include Computers & Technology, Exercise & Fitness, Fashion, Business Graphics, and many more. The entire set of images can be purchased for \$899, or you can pick up sets of two for \$99.

Lotus OneSource (Lotus Development Corp.; for IBM PC and compatibles; \$7,000 to \$20,000 per annual subscription, depending on databases selected).

The *OneSource* line consists of six core products: *CD/Investment*, *CD/Corporate*, *CD/Banking*, *CD/International*, *CD/Private+*, and *CD/M+A*. Each CD-ROM delivers a variety of financial or business databases on a periodic basis—weekly, monthly, or quarterly. For example, *CD/Private+* has summary information on more than 100,000 private companies from *Ward's Business Directory* and the *Macmillan Directory of Leading Private Companies* and is updated quarterly. Subscribers of *CD/Investment*, which is updated weekly (a new CD-ROM is delivered by overnight courier, can tap into daily updates by modem).

Microsoft Small Business Consultant (Microsoft Corp.; for IBM PC and compatibles; \$149).

Small Business Consultant is a collection of publications on how to start and run a small business. It includes material from the Small Business Administration, Department of Commerce, and other government agencies on expanding your sales overseas, incorporating, importing and exporting, accounting and record keeping, bank loans, and many other matters. As with other CD-ROM software, you search a topic of interest and get a list of materials on the topic. Installation is quite simple, and the program

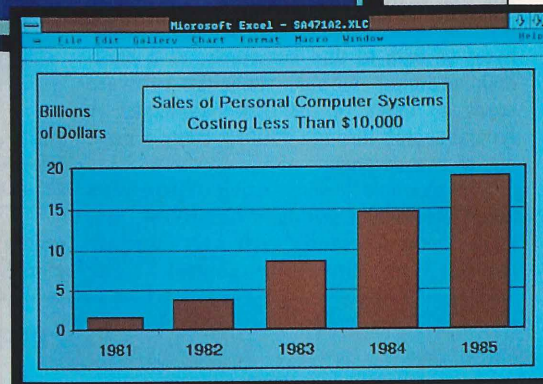
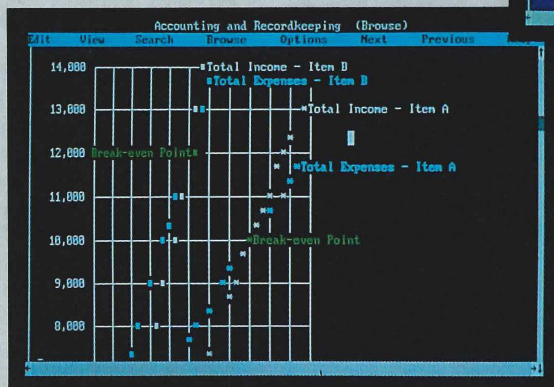
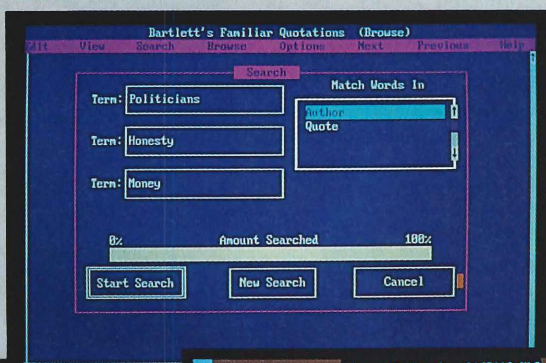
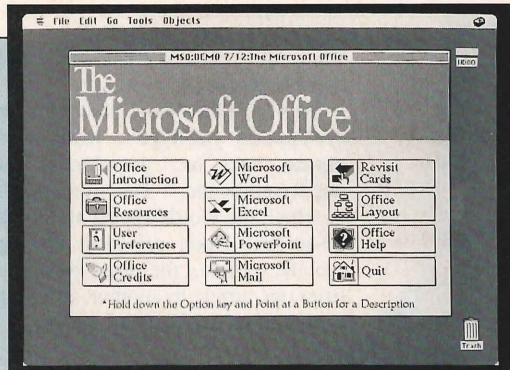
can be loaded in memory so that it pops up over your current application. You can mark material to copy, then transfer that data into your word processor.

Microsoft Bookshelf (Microsoft Corp.; for IBM PC and compatibles; \$295).

This collection of writing tools includes the *Houghton Mifflin Spelling Checker*, *Rogers's II: Electronic Thesaurus*, *Bartlett's Familiar Quotations*, *The Chicago Manual of Style*, the *U.S. Zip Code Directory*, and several other reference items. The software is memory-resident, ready to pop up whenever you need a reference source. It's a great idea, but not well implemented. It's fairly expensive (especially since you probably already own some of these sources) and a bit slow. And, while you can work directly with a number of word processors (it automatically recognizes which one you're using), the product hasn't been updated nearly as often as the leading word processors—there is no support for *WordPerfect* 5.0 or 5.1, for example.

Microsoft Stat Pack (Microsoft Corp.; for IBM PC and compatibles; \$125).

Want to know how much corn the U.S. produced last year? Or, how the average wage in Cincinnati compares with the average wage in New Orleans? This compilation of U.S. government facts and figures on business, trade, demographics, politics, and agriculture will give you the answers. The product works with many leading word processors and spreadsheets, including versions 5.0 of *WordPerfect* and *Microsoft Word*. You can browse subject areas, look up information by author, and view a table of contents in various subject areas. Each table in *Stat Pack* has a corresponding file that can be loaded into either *Microsoft Excel* or



Microsoft is one of the largest publishers of CD-ROM-based software. Pictured above are Office, Bookshelf, Small Business Consultant, and Stat Pack.

Lotus 1-2-3 for performing what-if analyses or printing in report format.

The Microsoft Office (Microsoft Corp.; for Macintosh; \$949).

The Microsoft Office is a collection of leading Microsoft business applications for the Macintosh—including *Word*, *Excel*, *PowerPoint*, and *Mail*. Why would you buy these programs on CD-ROM instead of the disk versions? First, you save money; second, you gain convenience. Software installation is easier than with the individual disk-based versions, and there are some added benefits, as well. All the documentation is on-line, including screen images and voice-overs to help you learn the various products. There are also animated introductions to key product features and a number of worthwhile third-party add-ons, including templates, business applications, and clip art.

NYNEX Fast Track (NYNEX Information Resources Co.; for IBM PC and compatibles; \$800 to \$9,500 per year).

Fast Track is expensive, but if you have a direct-mail business or phone-based sales and marketing business in New York or New England, it could be invaluable. The directory includes phone numbers and addresses for every NYNEX phone exchange—the same information held in 300 phone directories. NYNEX divides its territory into four regions; you can buy any or all and get updates at different intervals.

Photo Gallery (NEC Technologies; for IBM PC and compatibles and Mac; \$399).

Photo Gallery includes more than 1,500 black-and-white photo images provided by

Uniphoto, a worldwide stock photo agency. The photos are stored in the popular tagged image file format (TIFF). Thus, you can read the images into most leading desktop-publishing, word-processing, and illustration software for use in newsletters, posters, or any type of graphic output.

Reader's Guide to Periodical Literature (H.W. Wilson; IBM PC and compatibles; \$1,095 annual subscription).

This CD-ROM version of the familiar reference tool is expensive, although worthwhile for academic or other researchers who use this sourcebook on a regular basis. Of course, it's much easier to search than the printed version.

The New Grolier Electronic Encyclopedia (Grolier Electronic Publishing; for IBM PC and compatibles; \$395).

This 21-volume encyclopedia lets you do things you can't do with the printed version, like compare two articles with a split screen, open 10 windows at once, and save your place with an electronic bookmark. Users

familiar with both the printed and electronic versions agree that you can perform a successful search with the electronic version at least twice as fast as you can with the printed version. The lack of graphics is disappointing, but otherwise this electronic encyclopedia is a well-priced and useful reference tool.

Type Gallery PS (NEC Technologies; for IBM PC and compatibles and Macintosh; \$9,999 for all typefaces; includes NEC CDR-35 CD-ROM drive; or, \$399 for three type families; additional families \$49–\$250).

This disk contains the entire Adobe Systems library of 470 PostScript typefaces, although you only gain access, by secret code, to those that you pay for. When you want to access a new type family, you call the company with your credit-card information and get a new code. A hardcover book shows samples of the typefaces on the disk. If you are running a serious desktop-publishing business, this is an invaluable tool.

Other titles: **Variety's Video Directory Plus** (Bowker; \$195 for single issue, \$395 for annual subscription); **Shakespeare on Disc** (CMC Research; \$99); **News Digest** (Facts on File; \$770); **Mac Public Domain Software** (Boston Computer Society; \$149); **Whole Earth Catalogue** (Broderbund Software; \$149); **Timetable of History: Science & Innovation** (Xiphias; \$185); **Languages of the World** (NTC Publishing; \$950); **GEODisk U.S. Atlas** (GEOVision; \$595); **CIA World Fact Book** (Quanta Press; \$99); **Merriam Webster's Ninth New Collegiate Dictionary** (Merriam Webster; \$200); **PC Globe** (PC Globe Inc; \$70). ■

PHONE NUMBERS

Grolier Electronic Publishing, (203) 797-3500, (800) 356-5590; H.W. Wilson, (800) 367-6770 (outside NY), (800) 462-6060 (NY); Lotus, (617) 577-8500; Microsoft, (206) 882-8080; NEC Technologies, (708) 860-9500, (800) 746-6363; Pergamon Compact Solution (London, England), 011-44-01-928-1404; Sony Corp. of America, (201) 930-1000, (800) 222-7669; Toshiba America Information Systems, (714) 583-3000, (800) 456-3475; Ziff Communications Co., (212) 503-4400

On My Own,
Part IV: BY COREY SANDLER



*The Problem Was Finding Space
Isolated from the Living Quarters
But Not Inaccessible to Visitors*

Planning and Building An Office



ILLUSTRATION BY DENNIS DITTRICH

When I decided to operate my writing and consulting business full-time from home, I knew I needed a fully equipped office similar to the corporate office I was leaving. I needed something that would be in my house—but not really part of my home. I started by making a list of my possibilities:

Option 1: I could set up in the extra bed-

room on the second floor, just down the hall from my bedroom and those of my children. It's an attractive, airy room with a cathedral ceiling and plenty of closet space. It had electrical outlets, telephone wiring, heating, air-conditioning, and carpeting.

But I knew right away that it was too close to the living quarters. If I needed to be pounding away at the keyboard at 5:00 in the morning, I would wake up the sleepers; if I needed silence to think and conduct my business on the telephone, the children would be camped outside with toy drums and pianos. And there was no possibility of

expansion without dispossessing someone of a bedroom.

Option 2: I could use the unfinished attic that runs the length of the house. The attic would give me all the space I could possibly need, although it would be difficult to hang anything on the sloping walls.

This option presented a number of construction and technical barriers, though. I'd have to install a permanent set of stairs to replace the pull-down ladder in the hallway. And I'd have to deal with cooling the attic in the summer. I also realized that although the attic was sufficiently blocked off from

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the rest of the house to be private, any visitors to the office would have to walk by the bedrooms of the house—neither a grand nor professional entrance.

Option 3: I could work down in the unfinished basement. The basement does offer plenty of space and easy access to electrical and telephone lines. But callers would have to enter through a door in the kitchen—better than through a bedroom but still not quite as professional as I wanted. Also, the space was not clean; the ceiling was about a foot lower than upstairs (and it was covered with pipes); and there was a water meter on the wall and a bunch of columns and beams holding up the house.

When I thought it through, though, the basement was irresistible. I could “commute” from my bedroom to the office in my home and be isolated from the family. It was virgin territory, just waiting to be developed.

I did my initial planning on the back of an envelope, but soon moved onto my computer and used Lotus *Freelance* to sketch out a floor plan that included electrical outlets, switches, lighting, and furniture (see box, “*Software to Design an Office*”).

At the foot of the stairs, I created a mini hallway, with a pair of doors: one leads left into my office suite and the other into the storage section of the basement. I made sure that any visitor to my office would be able to enter directly without seeing the cobwebbed cellar on the other side of the wall. The doors also serve as extra insulation from the noise upstairs. I built the office as far away from the furnace as possible to reduce the noise.

A large steel beam and a row of columns run down the length of the cellar ceiling. Rather than work around them, I chose to divide the space into two rooms (each about 12 by 16, or 200 square feet). That way, I could lay out the furniture differently in each area, using one room as my writing area and the other as a laboratory and storage area.

MAKING THE BASEMENT LIVABLE

Heating and cooling were simple. To begin with, the basement’s temperature is relatively stable, generally requiring just a small amount of heat to make it comfortable in winter and little or no cooling in summer.

On the basement ceiling are ducts that distribute cooled or heated air to the house. I thought about tapping into them for heat, but a heating and air-conditioning contractor quickly convinced me to drop that idea. He said that tapping into the ducts would throw off the balance of heating and cooling upstairs, and the sheet metal work would cost as much as installing electric strip heating with a separate thermostat. So I chose electric heat.

I purchased a large dehumidifier to com-

pensate for dampness. It runs every night during warm months. I sealed the cement floor with a heavy enamel paint, and included in design specifications a raised floor with a layer of insulation on top of a plastic vapor barrier.

To test for radon, I bought a detector, left it in place for a week, and sent it off to a laboratory. My basement was clean during the test period.

I built the two rooms of the office in two stages. The formal writing space was completed first, with full plasterboard walls and ceiling and a built-up insulated floor. The laboratory and storage area was completed later. I had professionals do all of the work, except for the complicated ceiling in the filing area. I reserved that for myself—to have some fun swinging a hammer after sitting at a desk for 12-hour stretches and to save about \$500. I boxed in the pipes with plywood and installed a higher drop ceiling in the rest of the room.

Both carpenters (one for each room) did fine jobs, and included special touches: a box with an access door around the water

meter and attractive wooden frames around the tiny basement windows—the only source of natural light.

I filed for building and electrical permits, even though I was told by several contractors that such legal niceties weren’t really necessary. However, I decided the \$100 or so in fees might protect me or a future buyer from problems with the tax assessor.

WIRING

Like most basements, mine had only a minimal number of electrical outlets and a few bare pull-string lights when work began. I opted for wires running to three separate circuit breakers.

Why so much power? Well, here’s what’s in my office: three computers and monitors; a laser printer; a high-speed impact printer; a facsimile machine; a recorder-transcriber; a scanner; a stereo system; an answering machine; five telephone sets; a television set; and a set of Nintendo and NEC video game machines. (It’s not what you think: One of my ongoing projects is a series of books on video games for Bantam.)

Why dedicated circuit breakers? In theory, modern electronic devices are pretty well isolated from interference, especially if you are wise enough to install noise filters and surge protectors at each outlet. However, a few electrical systems in today’s homes can cause problems for computers. Furnaces, air-conditioners, refrigerators, and microwave ovens draw a lot of power when you turn them on. I didn’t want to explain to a client that my four-year-old fried one of my most complex files when she melted her marshmallows onto a graham cracker in the microwave. And fluorescent bulbs emit radio frequency interference.

A \$5,000 JOB

Construction costs for the two-room office came to about \$3,000. Electrical work came to \$750. I paid an additional \$1,000 or so for carpeting, paint, and assorted hardware. The drop ceiling and boxed-in duct work I did cost about \$400, less than half what the carpenters were asking.

I’m writing this diary in my home office early on a Monday morning. Upstairs the family is going through the regular mad dash for the school bus. Dishes are flying, my four-year-old is throwing a tantrum, and my six-year-old is arguing with a Nintendo monster. Down here in my cocoon all is peaceful and businesslike. ■

ON MY OWN TITLES: JANUARY: *Part I, Leaving the Corporation*; FEBRUARY: *Part II, A Web of Insurance*; MARCH: *Part III, Keeping Business Records*; APRIL: *Part IV, Building an Office*; MAY: *Part V, Taking on a Partner*; JUNE: *Part VI, Pricing Myself to Sell*; JULY: *Part VII, Setting Up a Communications System*; AUGUST: *Part VIII, Shopping for Supplies*; SEPTEMBER: *Part IX, Making Business Work*

SOFTWARE TO DESIGN AN OFFICE

It’s quite possible to design your office on the back of a cocktail napkin, but such plans can be difficult to translate into two-by-fours.

I adapted the Lotus *Freelance* 3.0 drawing program to create a schematic of my office to show carpenters and the building inspector. It impressed the carpenter so much that I think he’s going to raise his rates and buy himself a computer. *Freelance* is not specifically intended for such design purposes—it doesn’t easily allow you to scale your drawing—but it beats the napkin.

Recently, I’ve come across two programs that make me feel like Frank Lloyd Wright reincarnated.

Roomer2 (\$295; Hufnagel Software; [814] 226-5600; for MS-DOS) is a relatively simple computer-aided design program intended for floor plans and furniture arrangements. Once you create the plan, you can move in and around a three-dimensional model of your design. The package includes facilities to design offices, houses, factories—just about anything. One intriguing suggestion by Hufnagel is to use the product to design a stage set for theatrical productions.

Generic CADD Level 2 (\$200; Generic Software; [206] 487-CADD; [800] 228-3601; for MS-DOS) is an amazing program that allows you to design anything from a garage to a Lamborghini to a space shuttle. The Starter Kit includes a symbol library for basic home design. Commercial and residential furnishings and other optional kits provide more detailed home and office symbols. The product has an unusually broad range of output options, including most printers, and can save files in .PCX, .TIFF, .MSP, .IMG, .HPGL, and .EPS formats, allowing them to be edited and printed within most major drawing and word-processing programs.

Rating the New Lotus 1-2-3s

Two Updates of the Classic—They Did It Right

BY CHARLES H. GAJEWAY

For many people, the term spreadsheet is synonymous with Lotus 1-2-3. Very few programs have achieved the overwhelming popularity that 1-2-3 has, despite the fact that it was last updated more than three years ago. While some people have switched to the competition—notably *Excel*, *SuperCalc*, and *Quattro Pro*—many 1-2-3 owners, including me, elected to wait and see what Lotus had to offer before making a change.

Well, I'm glad I waited, especially since Lotus created two distinct new versions of 1-2-3. Release 2.2 suits general-purpose use on any MS-DOS computer, while Release 3 is appropriate for advanced work on systems with 80286 or 80386 microprocessors. I evaluated both versions, and while they are similar in appearance and operation, several significant differences distinguish them. Let's see how the new versions of 1-2-3 stack up against each other and their predecessors.

UPGRADED SPREADSHEETS

Since 1-2-3, in addition to being a graphing and database tool, is first and foremost a spreadsheet, I'll begin with number-crunching enhancements found in both versions.

For instance, I like the powerful new Undo command. When it's turned on, a single keystroke cancels my most recent change to worksheet data or settings. If I invoke Undo after I execute a macro, all the changes made by the macro are canceled. This is a big time-saver when I debug a long

macro, make an error while revising a file, or experiment with an unfamiliar function or technique. However, Release 2.2's implementation of Undo consumes a lot of memory; so without a fair amount of expansion memory, Undo must be used selectively.

I also like the new search-and-replace functions, which let me find and alter all occurrences of a particular string. This makes it very easy to correct mistakes, update formulas, even change values embedded in formulas. I also use Search to page through large worksheets, locating sections by their titles.

Release 2.2's key new feature is the ability to create dynamic links between files. Now that subsidiary worksheets can automatically cascade data to a summary or master file, I never need to wait for a macro to crank through a series of File Combine commands, or build a series of small tables into huge, unwieldy files, to facilitate what-if analysis.

Greater speed is another of Release 2.2's major improvements. When I enter a revision, the recalculation scheme recomputes only those formulas that use the cell I revised, instead of the entire worksheet. All told, 2.2 is well matched to the typical "plug and chug" user who needs to input data and get results as fast as possible, without having to trade up to a more expensive rig to do it.

Release 3, however, expands the original spreadsheet concept into a multiple-file, three-dimensional environment. Each Release 3 file can contain up to 256 worksheets, and, depending on how much memory is available, multiple files can be open

simultaneously. In combination with the dynamic file-linking capabilities of 2.2, multiple files make Release 3 a hands-down winner among spreadsheets.

In order to help me maintain control of this multifaceted environment, I either split the screen vertically or horizontally to view a pair of worksheets or stack up to three consecutive worksheets in a perspective view. Worksheets within a file are identified by one or two letters appearing in the border's upper left corner. Cells in a worksheet are mapped by the familiar letter-number column and row identifiers, preceded by the worksheet letter and a colon to denote which sheet the cell is in. Thus, A:A1 would be the first worksheet, first column, first row; while C:E23 would be the third worksheet, fifth column, twenty-third row.

MAKING GRAPHS FROM NUMBERS

The new Graph Group command makes creating graphs in both versions faster and easier. Instead of marking the X-axis and data ranges one by one, now I select and graph an entire table of numbers at once, and the first row or column of the table becomes my X-axis values. Similarly, the Group option for setting legends and labels lets me notate graphs as quickly and simply as I create them.

In addition, Release 2.2 displays all the graph settings at once, so I can specify any option without having to use individual menus. I found this especially handy for setting a standard layout for all my graphs, making it both quicker to create a series of graphs and easier to give them a uniform, highly professional appearance.

Finally, both versions' new Table command will, in an unused portion of a worksheet, automatically create a three-column list of all named graphs. The first column shows the graph's name, the second its type, and the third the first line of its title. Since my reports frequently contain a variety of graphs, I found that creating such a table made it much easier to track them.

While Release 2.2 settles for spiffing up graph appearance and displaying a series of graphs as a slide show, Release 3 adds further strengths. I can open an on-screen window that constantly displays and updates a graph as I work on related data in the spreadsheet. For convenience, I can highlight a range of data and display a "quick graph" at a keystroke. In addition, Lotus has expanded the list of graph types, colors, fonts, and patterns, as well as the ability to save graphs in formats for use with other programs.

Release 3 also does away with the clunky PrintGraph option, and now lets me print graphs directly from the spreadsheet. Those who often include graphs in reports may find this aspect of Release 3 irresistibly convenient.

DATABASE IN A SPREADSHEET

The third leg of 1-2-3 has always been its list-manager capability, using a worksheet's rows and columns as records and fields,

1-2-3 data tables. For example, if I were tracking sales by region, I would have several data tables—one for each region. By using the new join criteria, I can extract data from disparate tables and collect the results in an output table. Since I can create a table with a linking formula that reads in data from still other spreadsheets, it is relatively simple to relate multiple levels of data in a summary worksheet.

Second, the new Data External command lets me draw data from *dBase III* directly within Release 3. This command requires a database driver, a program that lets me read and change data in files maintained by other programs. Lotus supplies a driver for *dBase III*; for information on drivers for other programs, you can call the company at (800) 345-5415.

As is the case with any other relational database, these new features are complex and require patience to learn and master. But the results will be worth the effort, eliminating the long, repetitive file translations that earlier versions required to transfer data between 1-2-3 and a separate database program.

TIMESAIVING MACROS

Macros—which are stored series of commands that can be started with a keystroke—have been an important element of 1-2-3 since the beginning. Many 1-2-3 fans

Lotus 1-2-3 Release 3

SYSTEM REQUIREMENTS: 1MB IBM PC/AT, PS/2 (80286 microprocessor minimum); hard-disk drive; CGA, EGA, VGA, or Hercules; DOS 3.0 or higher or OS/2 1.0; 5.25- or 3.5-inch

PUBLISHER: Lotus Development Corp., 55 Cambridge Pkwy., Cambridge, MA 02142; (617) 577-8500

PRICE: \$595

OVERALL PERFORMANCE: ★ ★ ★ ★

DOCUMENTATION: ★ ★ ★

ERROR HANDLING: ★ ★ ★ ★

EASE OF USE: ★ ★

SUPPORT: ★ ★

since I like to stamp worksheets with the current date and time, I simply record the keystrokes needed to enter them automatically. Or if I need to update a sales report, I can record the keystrokes required to bring me to the current date, enter the new data, update some graphs, and print the report. Once you gain familiarity with basic recorded macros, several new commands extend 1-2-3's macro capabilities beyond automatic operation of the program into a true programming language.

Lotus has also made macros easier to use with new features such as a single key to select and execute macros, improved debugging, and library management that stores frequently used macros in a central file (instead of duplicating them in each worksheet as before). Apart from built-in library management (Release 2.2 uses an add-in for that feature), Release 3 offers no significant advantage over 2.2.

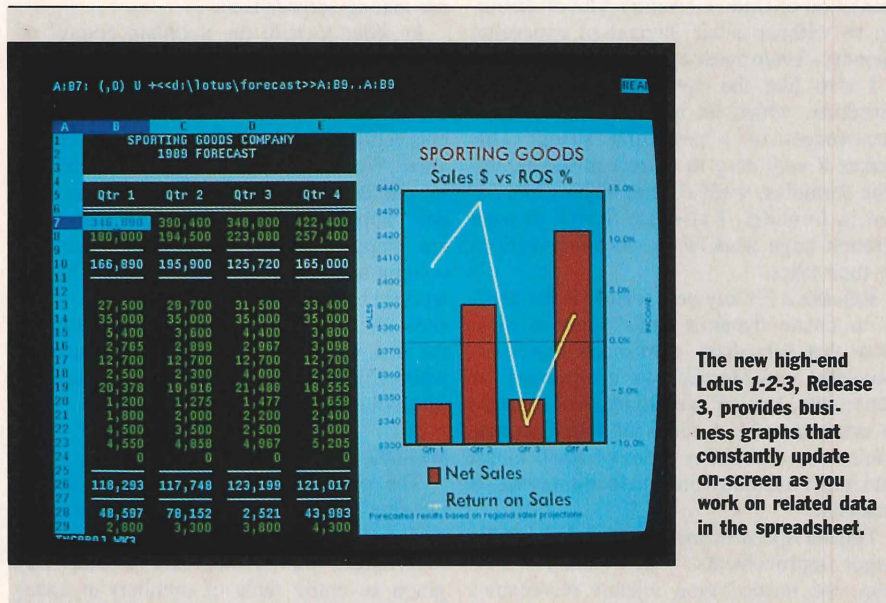
EXPANDING THE BASIC PROGRAM

Lotus 1-2-3 add-ins, which can be either new spreadsheet functions, macro commands, or entire applications, have been extremely popular, since they let you enhance the program and tailor it to your needs. Not only has Lotus supplied Release 2.2 with two add-ins, they're now much easier to manage.

The first add-in, *Always*, is a "spreadsheet publishing" utility that makes using laser printers much easier by displaying your final printout on-screen. The display includes multiple fonts; extended formatting options, such as bolding, shadowing, and double underlining; and a mixture of text and graphs on the same page.

The second, *Macro Library Manager*, stores commonly used macros in a central file that is not attached to any particular worksheet. I can either run the macros directly from the library or copy them into a worksheet as needed. Very handy.

While Release 3 can use add-ins, they are incompatible with those for Release 2.2. Release 3 add-ins will inevitably appear on the market, but none are provided now be-



The new high-end Lotus 1-2-3, Release 3, provides business graphs that constantly update on-screen as you work on related data in the spreadsheet.

respectively. Several commands and functions help me search, sort, and extract information just as I would with a standard flat-file database. Many have found 1-2-3's list-management features useful and intuitive, and Release 2.2 carried them forward essentially unchanged. Release 3, however, greatly enhanced its relational data management capabilities in two ways.

First, a new aspect of the Query and Extract commands, called a *join formula*, looks for matching field entries in multiple

use macros extensively to automate repetitive actions, such as entering the months of the year into a row or column. With experience, you can create special-purpose spreadsheets that have their own menus, error messages, and special display screens; prompt another person for input; and automatically create output files.

Both new versions deliver expanded macro capabilities. Notably, the addition of keystroke recording of commands makes it easier, even fun, to create macros. For example,

cause the functionality of both *Allways* and the *Macro Library Manager* is built-in.

PRINTOUT POSSIBILITIES

Laser printers, with or without PostScript, have long presented problems for users of *1-2-3*. The original *1-2-3* print routines were designed for dot-matrix line printers and did not work well with the new

Release 3 is amazingly powerful; it's far more than a mere update. Still, even though people with EMS memory will be happy that *1-2-3* now loads into expanded RAM (with data occupying the faster main section), Release 3 manages memory less economically than Release 2.2 does. And while not exactly a slug, 3 doesn't operate with the satisfying zing of 2.2, either.

disks, function-key templates, installation and tutorial guides, a reference manual, and an upgrader's handbook for users of previous versions. And while Lotus has eliminated copy protection from *1-2-3*, you're required to "personalize" your original disks by entering your name and company before you can install the program.

I was unable to hang, bomb, or otherwise disrupt either version of *1-2-3*. However, since I can't always use Release 2.2's Undo function because of its memory requirements, that version's error-handling rating must be downgraded. And with either version, it takes practice to gain proficiency. Despite all the on-line help and keyboard templates, even long-time users need to have the manual handy. So ease of use rates very good for Release 2.2 and good for the slower and more complex Release 3.

I can't give the Lotus user support a rating better than good. The technical-support number is frequently busy, and after an initial six-month eligibility for the premium 24-hour toll-free support line, you must either pay for continued access to the premium service (\$49 per year) or pay long-distance charges for each call (and you will frequently be placed on hold for extended periods). While the technicians are generally knowledgeable and will try to answer your questions, they seldom make an extra effort to help find a work-around for a knotty problem (such as a question I had about printing on a PostScript printer through an AppleTalk network adapter).

THE BOTTOM LINE

I really like the power of Release 3, but it reminds me of a big truck—ponderous and hard to control. I think it would be best suited to people who manipulate fairly large amounts of separate but related data, such as consolidation reports, product line summaries, or complex tax returns. Unless you need the enormous capacity of the Release 3 spreadsheet, or its better graphics and printing, the greater speed and lower memory needs of Release 2.2 will probably fit your day-to-day needs better, even if you have an 80286 computer.

If you have any older version of *1-2-3*, upgrade. The newer programs are better, and the upgrade costs just \$150. But if you don't own a spreadsheet and need one only occasionally, you might consider a less expensive program, such as *VP-Planner Plus* (\$249; Paperback Software International), *Quattro* (\$130; Borland International), or *Lucid 3D* (\$100; Dac Software).

However, if you will be using a spreadsheet regularly, Lotus *1-2-3* Release 2.2 is a safe bet because of its wide popularity and support. And if your needs call for a truly powerful spreadsheet, Release 3 is one of the best around. Add a big drive and lots of memory, and you will be able to accomplish amazing feats. Lotus may have made us wait, but they did it right. Twice. ■

[2: (C8) U <<SALARIES.WK1>>1984_WAGES

INCOME STATEMENT

	1984	1985	1986	1987
Net Sales	\$290,000	\$340,000	\$390,000	\$450,000
Cost of Goods Sold / Sales	148,000	194,500	223,000	257,400
Gross Profit	\$142,000	\$145,500	\$166,920	\$192,600
Operating Expenses				
Wages	\$27,500	\$29,700	\$31,500	\$33,400
Salaries	35,000	35,000	35,000	35,000
Rent	5,400	3,600	4,400	3,800
Telephone & Utilities	2,765	2,899	2,967	3,098
Insurance	12,700	12,700	12,700	12,700
Advertising	2,500	2,300	4,000	2,200
Maintenance & Repairs	20,378	19,916	21,488	18,555
Gas & Oil	1,200	1,275	1,477	1,659
Depreciation	1,800	2,000	2,200	2,400

By recalculating only the cells affected by a change in your spreadsheet, Lotus *1-2-3* Release 2.2 runs much faster than its predecessor.

generation of page-oriented laser units.

Somewhat disappointingly, Lotus chose to use the *Allways* add-in to work around this problem in Release 2.2. *Allways* does work well with laser printers, and it does let me print graphs directly from the spreadsheet (instead of having to quit and use the PrintGraph program). But the add-in is a memory hog (I need at least 512K, and a lot more if I want to use Undo as well), requires a hard disk, and is a bit tricky to learn and use. However, for people who rarely need more than straight text or who don't have a laser printer, *Allways* is more than adequate and better than nothing—but I would prefer an integrated solution.

Release 3 is far more elegant, with most of *Allways'* features plus the ability to print in the background while I continue to work. Since a complicated layout can easily take 15 minutes or more to print from a LaserJet, this is a real boon.

GOOFS AND MISSES

I found very few things that I would change in either version. After all, I already liked *1-2-3*, and Lotus has polished its crown jewels very carefully since the program's introduction.

However, I wish Lotus had seen fit to let Release 2.2 users open multiple spreadsheets. This would make life much easier for those of us who work with a lot of small files, because then we could create linking formulas by just pointing at the cells to be linked. I also wish mouse support were available; it, too, could make linking easier.

Also, I sometimes get confused by Release 3's layered menus. But these are all minor flaws—the only major problem I ran across was in trying to keep track of where I was. Only being able to see three out of a possible 256 levels makes it all too easy to get lost. Maybe there will be an add-in to help keep it all straight.

HOW'D THEY DO?

I found Release 2.2's documentation more clearly written and better organized than Release 3's manuals. To some extent, this may reflect the greater complexity of Release 3, but it took me much less time to find the answer to a question on Release 2.2, not just to understand it. Each version's package includes either 5.25- or 3.5-inch

Lotus 1-2-3 Release 2.2

SYSTEM REQUIREMENTS: 320K IBM PC, PS/2 (512K required for *Allways*); two drives (hard-disk drive required for *Allways*); CGA, EGA, VGA, or Hercules; DOS 2.0 or higher; 5.25- or 3.5-inch

PUBLISHER: Lotus Development Corp., 55 Cambridge Pkwy., Cambridge, MA 02142; (617) 577-8500

PRICE: \$495

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★ ★ ★

ERROR HANDLING: ★ ★ ★

EASE OF USE: ★ ★ ★

SUPPORT: ★ ★

The 80286: Today's Best Computing Value

BY HENRY F. BEECHHOLD

Reviews of Three New 12-MHz 286 Systems

About Our Reviews and Ratings

Each month, HOME-OFFICE COMPUTING's *Hardware Reviews* take an in-depth look at new and worthwhile computers, peripherals, fax machines, copiers, phones, and other hardware.

Our reviewers set up the equipment in their own home offices. After heavy use and extensive testing, they rank each item on the basis of suitability for the home office and on overall value, taking into account performance, features, ease of setup, ease of learning and use, documentation, size, expandability/versatility, support, availability, warranty, and value for the money.

Then, the HOME-OFFICE COMPUTING Hardware Testing Lab conducts its own battery of tests (a printer speed test, for example) and verifies manufacturers' specifications. Finally, our technical editors weigh the reviewers' rankings, the lab test results, and their own experience to determine an overall rating on a scale of zero to four stars:

- Poor
- ★ Average
- ★★ Good
- ★★★ Very Good
- ★★★★ Excellent

Note on Hardware Requirements:

Any product listed as requiring an IBM PC/XT/AT or compatible should also work with an IBM PS/2 Model 25, Model 30, or Model 30 286.

REVIEWED IN THIS ISSUE

Computers:

Dell System 210
Magnavox MaxStation 480
NEC PowerMate 286 Plus
NEC ProSpeed 386

Portable Answering Machine with Fax:

Panasonic KX-F80

Telephone:

Southwestern Bell FD 8100

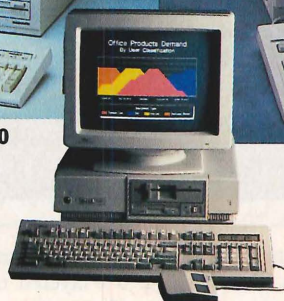
HENRY BEECHHOLD regularly reviews hardware for HOME-OFFICE COMPUTING.



The Magnavox MaxStation 480



The NEC PowerMate 286 Plus



The Dell System 210

Things change rapidly in the personal computer world. The threat of obsolescence looms constantly on the horizon. Will the equipment you buy today still do the job for you next year? It's hard to know the answer. Computers based on the Intel 80286 microprocessor, the so-called AT generation, were the hot technology of 1987. But they have been supplanted by 80386-based systems, which, in turn, will be supplanted by the i486 systems now hitting the market.

Q. Is the 80286 now obsolete?

A. By no means. Though far from the current cutting edge of technology, a well-made, well-equipped 286 computer today offers users good performance and excellent value. A 12-MHz 286 will run your application programs two to three times as fast as a high-speed 8088 or 8086 (XT) system, but sells for about the same as the XT did two to three years ago.

Q. Do I need a 386—or will a 286 do the job?

A. Candidates for 386 ownership need one or more of the following (all of which we'll discuss below): high processing speed, the ability to run 32-bit software, the ability to do multitasking. Users who would like to save some money and don't need raw processing power or the ability to run 32-bit software or do multitasking should get along fine with a 286 system. This includes many people who run small businesses.

Q. Isn't speed important?

A. Speed is fine, all things being equal, but

where computers are concerned, there's a trade-off: cost. Processing speed has its price, and the relevant question becomes, Does time saved justify the outlay for a faster computer?

For most computer users, whose work involves word processing, managing moderate-size databases, accounting, financial planning, statistical analysis, time management, and telecommunications, the answer is, probably not.

Applications that process large amounts of data really benefit from a faster computer (and a 386 can run any DOS application two to five times as fast as the 12-MHz 286s we'll be looking at later in this article). Applications that fall into this category are graphics, computer-aided design, desktop publishing, and huge databases and spreadsheets. In this type of work, a fast computer can save enough time and aggravation to fully justify its cost.

Q. Will a 286 cut me off from the software of the future?

A. Increasingly, programs designated *Some-*

ABOUT THIS MINIGUIDE

The three 12-MHz 286-based computers covered in this miniguide are representative of the dozens of 286 systems available in today's market. All are well engineered and solidly built products from reputable manufacturers.

thingOrOther/386 are appearing, but almost without exception these are nothing more than standard DOS programs modified to take advantage of certain characteristics of the 80386 microprocessor. Thus, there is a *Paradox/386*, which from the driver's seat is indistinguishable from *Paradox 3.0* (the latest 8-bit version of the package). The 386 version doesn't do anything that the older version doesn't, though it does some (but by no means all) things quite a bit faster.

The bottom line? It is unlikely that buying a 286 will lock you out of any of the software you'll need to get on with your business computing.

Q. What is multitasking—and why should I want it?

A. Multitasking is running more than one application at a time on a single computer. With the aid of special software, a 386-based computer can do this safely and efficiently. With a 286, multitasking is tediously slow.

If you work intensively with your computer and you're organized and disciplined—if, for example, you want to work on a report in your word processor while your computer is sorting a database in the background—multitasking could add efficiency and convenience to your work.

With a simpler and cheaper type of special software, you can do something similar to multitasking, called *program switching*. Program switching, which works fine on a 286, speeds up work for those who use several application programs. You load your applications into separate chunks of RAM and the switcher lets you move more or less

instantaneously between them, freeing all but the "foreground" program.

Q. How do 286 and 386 prices compare?

A. This can be a confusing issue. There are high-cost 286 systems as well as low-cost 386 systems. Another complication is the recent emergence of the 386SX, a price and function hybrid between 286 and 386 technology. (The latter is now called 386DX, by the way.) Finally, there are endless differences in configuration: how much RAM, how many floppy-disk drives, how large a hard-disk drive, what sort of display system, and so on.

One simple way to get a meaningful cost comparison between system types is to look at different models from a single manufacturer. Identically configured systems from Dell Computer (all with VGA color displays) were priced as follows: 12.5-MHz 286, \$2,100; 16-MHz 386SX, \$2,400; 20-MHz 386, \$4,100. The 386SX costs roughly 15 percent more than the 286; the 20-MHz 386 is almost twice the price. With another manufacturer, the gap between the 286 and the SX might be greater, and that between the 286 and the 386 smaller, but this gives you some guidelines.

Q. What constitutes a well-equipped 286?

A. Obviously, a general answer to a question of this kind ignores special needs. Nonetheless, here is a system that should cover the bases for a large number of users: 80286 microprocessor running at 12 or 12.5 MHz; at least 1MB of RAM; a 40MB hard-disk drive; 3.5-inch, 1.44MB and 5.25-inch, 1.2MB floppy-disk drives; and video graphics array (VGA) display with either color or

monochrome monitor. Let's look at these choices one by one.

Processor speed. A year ago, it made sense to consider a "fast" 286, one running at 16 or 20 MHz. With the advent of competitively priced 386SXs, this is no longer a cost-effective option, although such systems are still available. If you need more speed, buy a 386SX or 386DX.

RAM. A number of newer programs, and recent versions of older programs, require as much as 640K of RAM. Most 286 systems come with 1MB. If you plan to do program switching or multitasking, get at least 2MB of RAM.

Hard-disk drive. On-line storage is a luxury we have come to take for granted. Not having all our favorite applications tucked away on the hard disk, ready for use at a moment's notice, is almost unthinkable. And these days, it's not unusual for single application packages to take up a couple of megabytes of disk storage space. A 40MB hard-disk drive, now the de facto standard, will store a substantial software inventory plus a hefty collection of data files. If you work with very large data files, go to an 80MB drive—or higher.

Floppy-disk drives. Having both floppy-disk formats (5.25-inch, 1.2MB and 3.5-inch, 1.44MB) lets you exchange files with others, for example, your accountant, a consultant you hire, a client—even your own laptop. It's crazy not to spend the extra \$125 or so to have a 3.5-inch drive installed in your desktop computer.

Display. VGA has become the video standard for this generation of personal comput-

THREE 12-MHz 80286-BASED COMPUTER SYSTEMS

This chart compares the features of three new 286-based computer systems reviewed in this miniguide. All three systems come with VGA display output, and prices quoted include an optional VGA color monitor. The Magnavox and NEC systems should be available at discounts of between 20 and 35 percent off list price; the Dell is available directly from the manufacturer only, at the quoted price.

	Dell System 210	Magnavox MaxStation 480	NEC PowerMate 286 Plus
Rating	★ ★ ★	★ ★	★ ★ ★
Suggested Retail Price/Discount Price	\$2,349/NA	\$3,498/\$2,100	\$3,698/\$2,500
Microprocessor Speed/Wait States	6.25 or 12.5 MHz/0	8 MHz/0, 12.5 MHz/1	8 or 12 MHz/0
Memory, Standard/Maximum ¹	1MB/6MB	1MB/4MB	2MB/4MB
Hard-Disk Drive (capacity/access speed)	40MB/28 ms	40MB/28 ms	42MB/28 ms
Floppy-Disk Drive(s)	Choice of 5.25-inch, 1.2MB or 3.5-inch, 1.44MB	5.25-inch, 1.2MB and 3.5-inch, 1.44MB	5.25-inch, 1.2MB
Available Expansion Slots ²	3 AT	1 PC, 3 AT	3 AT, 1 DM
Ports ³	P, 2S, VGA	P, 2S, VGA	P, S, M, VGA
Footprint (width, depth, in inches)	15 by 15.75	14.25 by 15.25	17 by 16
Additional Software Included ⁴	Tutorial	MS-DOS 4.01, <i>AlphaWorks</i> , <i>PC Tutor</i>	None
Warranty (months)	12 ⁵	12	12
Phone	(800) 426-5150	(615) 521-4395	(312) 860-9500

Notes: 1. Standard = RAM normally supplied; Maximum = most RAM that will fit on system board without addition of a memory expansion card. 2. PC = 8-bit, AT = 16-bit, DM = dedicated memory expansion. 3. P = parallel, S = serial, M = mouse, VGA = video graphics array (display). 4. Each system, unless otherwise noted, includes system and video utilities, MS-DOS 3.3, and GWBASIC. 5. Includes 12 months on-site service.

ers. Since most of the better-quality 12-MHz 286 systems come with VGA output, you'll need only choose a VGA-compatible monochrome or color monitor. The former should sell for under \$200, the latter for \$400 to \$500 (discounted).

Prices. If you're buying from a retailer—as opposed to a direct supplier like Dell—you should expect (and ask for, if it's not offered) a substantial discount since you're buying a complete package. System discounts normally run between 20 and 35 percent of list price.

Q. Which system should I buy?

A. I believe that performance differences for similarly configured systems, although measurable, are negligible in practical, day-to-day use. This leaves price, features, product support, and availability as the criteria for choosing a system.

The three 286 systems reviewed here are recent models from established, reputable companies. They are well made and reliable, and all three units come with built-in VGA display output that, in each case, produces first-rate output in monochrome or color.

Dell System 210

SUGGESTED RETAIL PRICE: \$2,349

RATING: ★ ★ ★

MANUFACTURER'S PHONE: (800) 426-5150; (512) 338-4400

In a relatively short time, Dell has grown from a small mail-order house selling no-name computers into one of the larger, more successful American computer manufacturers, offering systems with handsome looks and sophisticated engineering. The systems are still sold by mail order, and the mail-order philosophy is still reflected in the dollar value of Dell's products.

Dell has made customer service a cornerstone of its operation, so if you decide on Dell equipment, you needn't worry about being seduced and abandoned. Dell is an easy company to do business with. If you have a problem, it can most likely be solved over the phone (toll free). In any case, you get a year's free on-site service.

The System 210 is one of the new breed of compact, space-saving desktop computers. Small size is attractive to many users, especially home-office types with limited space, but there is a trade-off: When the box shrinks, expansion slots vanish. The 210 has three available slots. If three slots are sufficient for your expansion needs, read on; if not, skip the System 210.

The front panel of this solidly built computer contains a key lock, a power switch, and a status light for hard-disk access. There is no reset button. The system's fan is audible but not obtrusive.

The Dell keyboard's touch comes mighty close to my ideal. I do prefer just a hair more resistance, but the clickiness feels

about right.

First-time computer buyers with no basis for comparison will probably think Dell's documentation good. To an experienced computer user and reviewer, Dell's efforts are extravagantly good. Not only are all 11 manuals, guides, and software envelopes color- and design-coordinated, but (more important) the critical start-up and troubleshooting guides are packed with detailed illustrations and explanations, which, combined with the on-screen tutorial, should allay even the severest technophobia.

The Dell System 210 strikes me as a most aggressive competitor for your 286 business. The only potential drawback is the expansion-slot limitation.

Magnavox MaxStation 480

SUGGESTED RETAIL PRICE: \$3,498

RATING: ★ ★

MANUFACTURER'S PHONE: (615) 521-4395

Although Magnavox is a grand old name in American electronics, the company is now a division of Philips Consumer Electronics, which manufactures the MaxStation in Canada. Of course, Philips is a grand old name in electronics as well, having invented, among many other modern classics, the cassette tape and the compact disc. In any case, the Magnavox name lives on in a line of well-respected video monitors and, now, a line of computer systems, of which the MaxStation 480 is a worthy representative.

The MaxStation is the smallest of the three systems reviewed here, so it should appeal to those whose work space is limited. Despite its small size, the MaxStation provides four free expansion slots. The 100-watt power supply is below average for a 286 computer these days, but it should be adequate for most users.

At 12 MHz, the system's microprocessor runs with one wait state, making it, by a small margin, the slowest of this 286 trio.

The keyboard gets a middling grade, with respect both to heft or solidity and to touch, which is on the mushy side and devoid of tactile click. The system's cooling fan and hard-disk drive both operate quietly.

The MaxStation 480 strikes me as a good choice for people setting up their first systems. It is a solid, capable computer, and Magnavox has provided good documentation, an exhaustive (and slightly exhausting) system tutorial program, *PC Tutor*, and *AlphaWorks*, an easy-to-learn integrated software package that includes all the basic productivity applications: word processing, database management, spreadsheets, graphics, and telecommunications.

Magnavox makes it about as simple as possible to put the computer into action. All of the software, including DOS 4.01, is virtually self-installing, and the printed documentation is textually and graphically de-

signed for newcomers. There is also a quick-start guide and system reference called the Road Map. The *AlphaWorks* manual is mainly a by-the-numbers tutorial with lots of screen shots and examples.

Again, much about the MaxStation 480 suggests that Magnavox has targeted it as a system for those new to computing. The simplicity of setup and the inclusion of a good integrated software package and DOS 4.01 (with its own shell) all point in this direction. For users who already own software and therefore don't need *AlphaWorks*, the price of the MaxStation may prove a deterrent.

NEC PowerMate 286 Plus

SUGGESTED RETAIL PRICE: \$3,698

RATING: ★ ★ ★

MANUFACTURER'S PHONE: (508) 264-8000

A giant of the Japanese electronics industry, NEC is the world's third largest maker of desktop computers. The company belongs to that exclusive club of those who make not only the "big pieces" but many of the little pieces—chips and other components—that go inside.

The PowerMate 286 Plus is the fastest of the three computers reviewed here. It is also the largest. Oddly, the size of the box is not reflected in expansion space. The 286 Plus has three (available) AT-style expansion slots and one dedicated high-speed memory slot.

The stylish front panel includes a power switch, keyboard connector, mouse port, and status lights for power, hard-disk access, and 12-MHz CPU speed. This is a convenient layout, flawed only by the lack of a reset button. The keyboard is attractive, pleasant in touch, and rather noisy—on the whole, a keyboard I could live with. The channel on the back of the keyboard that lets you lead the cable to either side is a nice touch, as is the extra-long cable.

Documentation for the PowerMate Plus is fine: brief, but clear and well illustrated. The instructions for setting the system defaults are as easy to follow as the utility software is easy to use. The Owner's Guide includes a troubleshooting checklist, but all further customer support is handled through "your NEC dealer." The PowerMate 286 Plus is covered by a one-year warranty; service is on a carry-in basis, through the dealer network.

One of the virtues of the NEC system is availability. This is a widely distributed product, and it is often heavily discounted. At its typical discount of about \$1,000 off the list price, the PowerMate Plus—a good-looking, solid performer—is a real bargain. In your shopping, though, keep your eyes peeled for the word *Plus*. If you don't see it, you're looking at an older model, without the built-in VGA.

Two for the Road: A 386 Portable, A Fax/Answering Machine Combo

Powerful Portable With Desktop Capabilities

NEC ProSpeed 386

NEC Technologies, Inc., 1255 Michael Dr., Wood Dale, IL 60191; (708) 860-9500, (800) 366-3632

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: \$6,599

MICROPROCESSOR: 80386 (16 MHz); socket for 80387 (math coprocessor)

MEMORY: 2MB, expandable to 4MB or 10MB

DISK DRIVES: 3.5-inch, 1.44MB floppy-disk drive and 40MB hard-disk drive, 27-ms access speed

DISPLAY: 640-by-400-resolution detachable backlit LCD; EGA graphics, VGA text

PORTS: One parallel, one serial, one VGA, battery and docking-station connector

FREE EXPANSION SLOTS: One 16-bit expansion slot, one 32-bit dedicated memory slot, connection for internal modem

SOFTWARE INCLUDED: MS-DOS 4.01; VM/386 multitasking control program; Telcom 2.0; security and setup software

OPTIONS: Docking station (\$999); 100MB hard-disk drive (23 ms, \$1,100); battery pack (\$349); memory-expansion cards: 2MB (\$1,299), 8MB (\$3,999); carrying case (\$129); car adapter (\$129); 2400-bit-per-second modem (\$599)

DIMENSIONS: 15.4 by 3.9 by 13.6 inches

WEIGHT: 17.5 pounds

WARRANTY: One year

The NEC ProSpeed 386 is a 16-MHz, 80386-based, AC-powered portable computer from a highly reputable manufacturer. At first glance, it hardly stands out from the crowd of similarly designed portables: It's certainly no speedster for a 386, and although the ProSpeed has a clamshell design, like most 386 portables it's too heavy and bulky to be considered a laptop. One feature does, however, set it apart from the rest of the pack: an optional docking station (\$999), a desk-bound box designed to transform the ProSpeed into a fully equipped desktop computer.

The idea here is to obviate duplication of equipment, and, presumably, save some money in the process. (This is not a new idea, by the way. Several vendors have tried it—most notably IBM—but it has never really caught on.) The ProSpeed's docking station houses four expansion slots (three



16-bit and one 8-bit) and two half-height 5.25-inch drive bays and provides a controller for one additional floppy-disk drive and connections for a standard monitor and keyboard. This is certainly enough capacity to bring the package up to desktop standards.

Configured with 2MB of internal memory and a fast 40MB hard-disk drive as standard equipment, the ProSpeed ran such programs as *Windows*, *PageMaker*, *WordPerfect*, *ProComm*, and *Paradox* quickly and with total IBM compatibility.

The liquid-crystal display (LCD) produces an easy-to-read black image on a bluish white background. The ProSpeed's text display is in VGA mode; graphics display is limited to EGA. Contrast is higher than that of most supertwisted LCDs, and the screen is readable from a fairly wide range of angles. As with many other LCD-type displays, the cursor tends to disappear during rapid movement, an annoying problem. Although the ProSpeed's display is superior to many other LCDs, it is competing head-on in the marketplace with full-VGA, gas-plasma displays from 386-laptop makers GRiD and Toshiba, and frankly, it doesn't quite measure up.

The ProSpeed's full-size keyboard is laid out with the function keys across the top and the numeric keypad on the right. The only thing distinguishing this from an AT-style enhanced keyboard is, as you might expect, the absence of dedicated cursor-movement keys. The touch is light but pleasant.

Although designed primarily to run from an AC power source, the ProSpeed 386 has an optional battery pack (NEC calls this the battery slice) that attaches to the back of the computer. The battery slice supplies about an hour's worth of power and takes about 12

hours to recharge fully. That's not a lot of battery life; still, if you need it, it's better than nothing.

Now for something completely different: With the ProSpeed 386 comes *VM/386*, a software package that provides genuine time-sharing multitasking. It's almost like getting a copy of OS/2 free with the system. The VM stands for *virtual machine*; it allows you to set up separate, independent ("virtual") computers in RAM and run a different MS-DOS application in each one—a very exciting prospect. You should know, however, before you run out and buy the ProSpeed to get your hands on *VM/386*, that the program is a memory hog. You won't be able to put it to practical use without investing \$1,299 (list) in a 2MB memory-expansion card.

Adding it all up, the ProSpeed 386 is a capable 386 portable with intriguing system potential. But that potential will not be cheap to implement fully. Add the cost of memory expansion necessary to run *VM/386*, \$999 for the docking station, \$500 to \$600 for a standard display system, \$100 or so for a standard keyboard, and who-knows-how-much for additional floppy-disk drive, modem, network board, and whatever other expansion items you might want, and you're looking at a major investment. On the other hand, portable computers are often deeply discounted; at least one New York-area dealer is throwing the docking station in free with the basic system. —ROGER LANCTOT

CIRCLE READER SERVICE 101

Portable Answering Machine and Fax Combo

Panasonic KX-F80 Answering Machine with Facsimile

Panasonic Company, One Panasonic Way, Secaucus, NJ 07094; (201) 348-7000

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: \$1,200

COMPATIBILITY: Group 3

RESOLUTION: Standard (203 by 98 dots per inch [dpi]) and fine (203 by 196 dpi)

MAXIMUM DOCUMENT SIZE: 8.5 by 23.6 inches

RECORDING PAPER LENGTH: 98 feet

MAXIMUM MODEM SPEED: 9600 bits per second

FEATURES: Speakerphone

DIMENSIONS: 2.9 by 13 by 9.9 inches

WARRANTY: One year



Panasonic has combined an answering machine with a fax. The model KX-F80 allows your existing phone line to double as your fax line—a practical time-, space-, and money-saving solution, providing your fax volume is low. And with discounted prices as low as \$700, the KX-F80 is an easy purchase to justify, since a reliable answering machine and a speakerphone are also thrown in. As if that weren't enough, you can take it on the road: It's portable.

The KX-F80 handles incoming faxes and voice calls smoothly. When the machine answers a call, it first plays the outgoing message. It then waits several seconds to detect a voice. If no one speaks, the machine switches to fax mode.

If you answer your phone and hear the high-pitched shrill of an incoming fax, you need only press the KX-F80's Speakerphone button (the unit has no handset), then the Start button, and the fax machine takes over.

As you may have suspected after noting the price, the KX-F80 is a bare-bones fax. You get no document feeder, no automatic paper cutter, a mere 10-number memory (each fax number can contain up to 30 digits), and only individual transmission reports. The KX-F80 cannot poll other fax machines, nor can it be programmed for delayed transmission.

The unit does, however, flawlessly receive standard Group 3 faxes automatically. And though the KX-F80 transmits documents fairly slowly (about 30 seconds per page in standard resolution), it can handle paper as small as 5 by 5 inches and as large as 8.5 by 23.6 inches.

The answering machine is more fully featured. You record your outgoing message (up to 16 seconds long) on a microchip, and incoming messages are recorded on a microcassette tape. You can program the answering machine to accept messages of indeterminate length or to cut callers off after one minute. Virtually all answering machine functions can be accessed remotely, an important feature for people who are frequently away from their offices. The machine

will also record memos—a nice feature if two people share one answering machine.

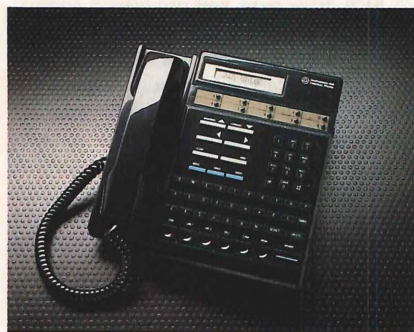
The KX-F80 answering machine does have one minor drawback: It lacks a toll-saver feature. To determine whether there are any messages waiting, you must let the machine answer and then enter your retrieval code. The machine then beeps once for each waiting message (a little too quickly for my taste).

I also had some quibbles about the documentation. For example, the machine normally answers an incoming call after one ring. Instructions for changing the number of rings are listed in the installation manual under service functions for the facsimile instead of in the operations manual.

If you need a low-volume fax as well as an answering machine but have only one phone line, the KX-F80 could be a great alternative to installing that second line. This answering machine-fax combination can also save you money—you won't have to purchase two pieces of equipment.

CIRCLE READER SERVICE 102

—ELLIOT KING



Speakerphone Dials by Name or Number

Southwestern Bell FD 8100

Southwestern Bell, 7486 Shadeland Station Way, Indianapolis, IN 46256; (317) 841-8006

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: \$200

TYPE: Two-line speakerphone

MEMORY: 160 numbers (150 stored by name, plus 10 one-touch)

FEATURES: Desk or wall mountable; LCD; conference; speed dialing; pulse or tone dialing; hold; speakerphone; call timer; redial; name/number memory scan; ringer volume control

DIMENSIONS: 9 by 9 by 3.5 inches

WARRANTY: One year

Nowadays, it's rare to come across an unreliable telephone from a reputable manufacturer. The components are usually sturdy and the sound quality through most handsets is clear. Many of today's phones also provide speed dialing or one-touch memory dialing, last-number or automatic redial, both touch-tone and rotary modes, and other handy features, such as hold and mute.

Accordingly, in judging today's crop of phones we tend to take acceptable performance as a given and focus on features and refinements: Does the phone have a speaker, and how good is the sound quality at the receiving end? How many numbers can it store for speed dialing? How complicated—and accessible—are the controls?

Southwestern Bell's Freedom Phone FD 8100 is a two-line speakerphone that covers all the basics quite nicely and offers some truly unusual features. The most conspicuous of these is a dialing directory that stores up to 150 numbers and names. Yes, names. With the 8100 you can place a call by entering the name of the person you're calling (from the unit's QWERTY keyboard) in place of his or her phone number. You can also store up to 10 numbers in one-touch, memory dialing.

A special security feature is included on the FD 8100 to guard against unauthorized people snooping around in your private phone numbers. The Secret button allows you to assign a security code to numbers you wish to protect; only someone with the code will then be able to access them.

Another unusual feature of the FD 8100 is a timer that automatically starts whenever you pick up the phone to place a call. This should be quite useful for professionals who need to bill consulting time or telephone charges (or both) to their clients. The phone also offers conference calling; you can hold three-way conversations, talking on both lines simultaneously.

The FD 8100 gets high marks for the quality of its speakerphone, by the way. Your callers will probably be aware that you're using a speakerphone, but the sound isn't objectionable. The placement of the FD 8100's controls—on the face of the instrument, where you can get at them—is another attribute worth mentioning. Too many telephones have their control switches and slides located inaccessibly on the sides, making it difficult to change settings without lifting or shifting them.

The one drawback I encountered with the FD 8100 is that it has only one phone-line connector. This is fine if you have two lines coming in on one phone wire. If, like me, however, you have two separate single lines, you'll have to buy a special adapter in order to connect them. (Incidentally, you can plug a single phone line into the FD 8100; it will work fine, but the red LED for Line 2 will stay lit all the time.)

Overall, Southwestern Bell's FD 8100 is admirable. It is sleek, has a multitude of convenient features, and seems to be a worthwhile investment for home-based business people who need to keep a passel of important phone numbers available at the touch of a button.

—STEPHEN MILLER

CIRCLE READER SERVICE 103

Top players have their games custom made.

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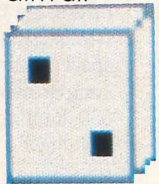
Players

- Leslie
- John C
- Holly Wood
- Deke Athlon

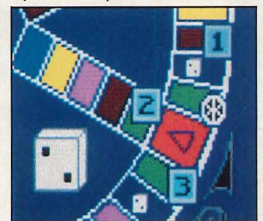
You can play the computer. Six different characters with artificial intelligence let you challenge the computer

on different skill levels and in different subjects. Holly Wood is tough to beat in Entertainment. What Deke Athlon doesn't know about Sports isn't worth knowing. And Arndt Sharp is pretty dim all around.

You roll the die.



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decide which location best fits your strategy.

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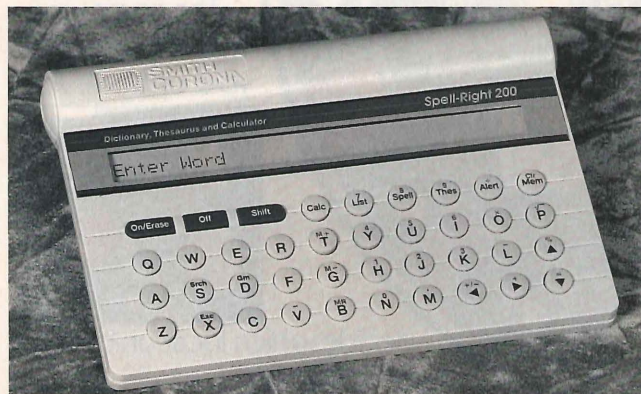


BY MARIE ALVICH



Affordable Computer Workstation. The durable *MX5800* computer workstation is especially suited for the home office with limited space. Its slide-out keyboard drawer and vertical CPU storage compartment leave your work area clear. \$199. From Mylex Ltd., 630 Kipling Ave., Etobicoke, Ontario, Canada M8Z 5S2; (416) 251-5561.

CIRCLE READER SERVICE 104



A Dictionary, a Thesaurus, and a Calculator Rolled into One. All these plus a foreign-currency converter and an address book are included in the Smith Corona *Spell-Right 200*. This is a great reference tool for writers, students, and business people. \$159. From Smith Corona Corp., 65 Locust Ave., New Canaan, CT 06840; (203) 972-1471.

CIRCLE READER SERVICE 105



Office in a Box. This package is a cornucopia of office supplies—pens, pencils, tape, Post-it notes, a glue stick, a highlighter pen, envelopes, paper clips, mailing labels, and much more. \$30. From Reliable HomeOffice, P.O. Box 804117, Chicago, IL 60680; (800) 869-6000; (312) 666-1800.

CIRCLE READER SERVICE 106

More Durable Disks. The sleek *Super RD MF2-HD* disks from Maxell offer a more durable and efficient way to store data. These black disks are made of a more pliable material than other 3.5-inch disks and feature a new flex shutter that more firmly adheres to the disk's shell, keeping out particles that can contaminate the disk surface. Formatted for high-density (1.44MB) drives on MS-DOS computers. \$64.80. From Maxell Corporation of America, 22-



08 Rte. 208, Fair Lawn, NJ 07410; (201) 794-5900.

CIRCLE READER SERVICE 107



Let Your Computer Tell You When It Needs Cleaning. Sound too good to be true? Discwasher's *CleanPath Computer-Controlled Maintenance Kit* includes everything you need to keep your computer system clean, including software that monitors the computer's clock and reminds you (via screen messages) when it's time to clean various parts of your system. In addition to the *CleanPath* software, the kit includes the CleanKey Keyboard Cleaning System, the CleanView Anti-Static Cleaning System for monitors, the DisClean Disk Drive Cleaning System (for both 5.25-inch and 3.5-inch drives), and the PerfectPrint Printer Cleaning System. Kits available for all IBM-compatible, Tandy, and Apple Macintosh computers. \$55 (5.25-inch drive systems) and \$60 (3.5-inch drive systems and Macs). From Discwasher, Inc., 4310 Transworld Rd., Schiller Park, IL 60176; (708) 678-9600.

CIRCLE READER SERVICE 108



Laptop Workstation. Although taking your laptop on the road is convenient, it's not always comfortable. The *Laptop WorkStation* can make portable computing a little easier. This portable organizer and support center includes two flip-up disk holders, a pop-up copyholder, and plenty of room for pens and pencils. \$70. From Curtis Manufacturing Co., Inc., 30 Fitzgerald Dr., Jaffrey, NH 03452; (603) 532-4123.

CIRCLE READER SERVICE 109

MARIE ALVICH is associate technical editor for HOME-OFFICE COMPUTING.

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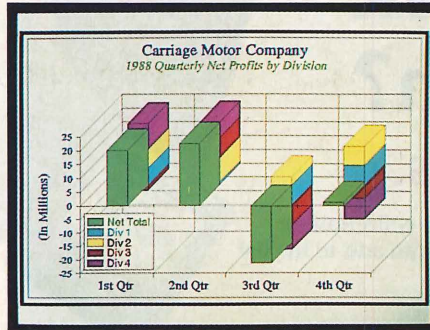
Almost Everything You Need to Run Your Business In One Box

Plus: A New AppleWorks, Time-Based Billing, A Complete Calendar Program, and More

Our reviews of application software use shorthand to describe several of the details associated with any package. This is particularly true under "System Requirements"—where the minimum system configuration is noted—so we have provided the following table of computers for you to refer to as needed. Hardware, software, and memory are required unless noted as "recommended" or "optional." When more than one computer is listed under "System Requirements," the machine marked with an asterisk (*) is the type on which the software was reviewed. Requirements are *not* listed where obvious (for instance, printers with word processors or modems with communications programs). Operating system requirements, such as MS-DOS or the Macintosh System file, are listed only when they're not the standard, minimum requirement (DOS 2.0 for IBM PC or compatibles, System 3.2 for the Macintosh, or ProDOS for the Apple II). For those computer systems that can use both 5.25- and 3.5-inch disks (IBM PC and PS/2 or the Apple II), we've listed only those disk sizes that are either supplied with the software or available at no extra cost from the publisher. Since most productivity software is not copy protected, we have indicated—with the letters "CP"—only those programs that are copy protected. The version listed is the version reviewed; publishers may release subsequent versions at any time.

Designation	Models
128K Apple	Ile/Ic/IIGS (in Ile/c mode) and compatibles
128Ke Apple	Ile (enhanced ROM)/Ic/IIGS(in Ile/c mode)
Apple IIGS	IIGS only
IBM PC, PS/2	PC/XT/AT, PS/2 and compatibles
128K Macintosh	128K/512K/512Ke/Plus/SE/II
512K Macintosh	512K/512Ke/Plus/SE/II
512Ke Macintosh	512Ke/Plus/SE/II
1MB Macintosh	Plus/SE/II

○	Poor	★★★	Very Good
★	Average	★★★★	Excellent
★★	Good		



SmartWareII integrates modules powerful enough to stand alone.

Integrated Package Rises to Any Challenge

SmartWareII

VERSION REVIEWED: 1.0

SYSTEM REQUIREMENTS: 512K IBM PC, PS/2 (640K recommended); hard-disk drive; CGA, EGA, VGA, or Hercules; DOS 3.1 or higher; 5.25- or 3.5-inch

PUBLISHER: Inform Software, Inc., 4100 Bohannon Dr., Menlo Park, CA 94025; (415) 926-6300

PRICE: \$699

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★ ★ ★

ERROR HANDLING: ★ ★ ★ ★

EASE OF USE: ★ ★ ★

SUPPORT: ★ ★ ★

SmartWareII is one heavy-duty program—both physically (the box weighs a lot) and functionally. It's a powerful integrated package that includes a word processor, a spreadsheet, a database manager, a telecommunications program, and a built-in programming language with which you can design custom applications.

The program's modules measure up well against similar stand-alone programs. Its word processor, for example, supports such advanced formatting features as creation of multicolumn text, automatic generation of indexes and tables of contents, elimination of widows and orphans, and footnoting. It

includes a 140,000-word dictionary, along with a thesaurus containing 600,000 synonyms and antonyms to help add punch to your prose. And the *SmartWareII* database manager is relational (meaning you can share information from records in different files) and even includes a forms generator, which lets you customize screens for data entry.

Learning to use *SmartWareII* is simple, since all of its modules use the same commands. It only took me about 15 minutes to familiarize myself with the command structure enough to begin setting up a sample database.

Help is context-sensitive: The first screen displayed is always associated with the command you were executing when you requested help. If the information you need is not immediately displayed, function-key commands let you find it easily. Although sometimes verbose, the help messages eliminate a lot of bouncing back and forth between the program and its hard-copy documentation.

There are quirks in the way the program's modules interact, however. One such oddity is that only one *SmartWareII* application module can be active at any given time. You cannot, for instance, compose a word-processing document while viewing information in another application. Rather, you must save your document and completely exit the word processor, then load the spreadsheet module if you need to reference data in a spreadsheet. This shortcoming is balanced somewhat by the ease with which it transfers data between modules. It took only a few seconds and about 10 keystrokes, for instance, to mark a portion of a spreadsheet file and copy it into a word-processing document.

You can automate *SmartWareII*'s operations in one of two ways: Either assign multiple commands to a single keystroke with the limited macro feature or take advantage of *SmartWareII*'s Project Development Language (PDL). PDL resembles programming languages in that you can use it to write mini programs to automate even the most complex operations. Be aware, however, that using PDL requires at least a passing familiarity with advanced programming concepts. Without that knowledge, chances are slim that you'll ever feel com-

portable working with PDL.

The program comes with seven spiral-bound program manuals and seven booklets covering such topics as installation, update notes, and memory management. Intimidating? Yes. Excessive? Not really. All of the manuals are top-notch.

SmartWareII's error-handling features are also of the highest caliber. If the program detects a potential problem and returns an error message, pressing F1 brings up more information on its possible causes and suggests solutions. Try to use the communications module to initialize your modem without turning it on first, for example, and *SmartWareII* returns the message "Modem is not responding. Is the modem on? Are the switches set correctly?" If you press F1, you get a full explanation of the conditions that could generate this error message.

Technical assistance is free, but the support line is not a toll-free number. Support is available Monday through Friday, from 8:30 a.m. to 5:00 p.m. central time. I called twice, once in the late morning and again in the early afternoon. After going three levels down in the automated routing system, I had to wait five minutes (at my expense, remember) before a real person answered the phone. That person knew what she was talking about, however, and cordially answered all my questions.

SmartWareII is a powerful integrated program. A common command structure across all feature-rich modules reduces the learning curve to manageable levels, and the program's context-sensitive help is more than adequate. Those with programming skills can use the PDL to further enhance productivity. At \$699, a fraction of what it would cost to purchase stand-alone programs with comparable capabilities, this program offers impressive features in four major application areas. If you're looking for one program to perform virtually all your operations, you can't find one much better than *SmartWareII*. —JACK NIMERSHEIM

AppleWorks Reaches New Heights of Sophistication

AppleWorks

VERSION REVIEWED: 3.0

SYSTEM REQUIREMENTS: 128K Apple (256K recommended); 5.25- and 3.5-inch

PUBLISHER: Claris Corp., 5201 Patrick Henry Dr., Santa Clara, CA 95052; (408) 987-7000

PRICE: \$249 (owners of *AppleWorks* 1.x or 2.x or *AppleWriter* can upgrade for \$79)

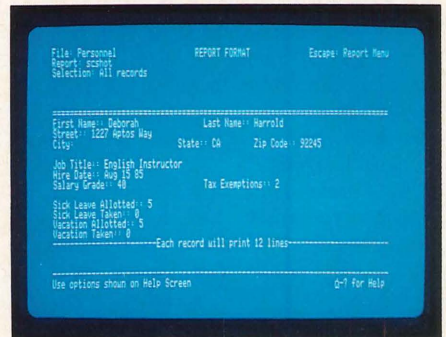
OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★ ★

ERROR HANDLING: ★ ★ ★

EASE OF USE: ★ ★

SUPPORT: ★



New features and streamlined operations enhance the performance of this classic package for the Apple II.

With the release of *AppleWorks* 3.0, Claris has added several new features to its classic word processor, database, and spreadsheet. Taken individually, no single renovation is major or earth-shattering. Collectively, however, the changes dramatically improve the software's performance.

It doesn't take experienced *AppleWorks* users long to learn 3.0, since it uses the

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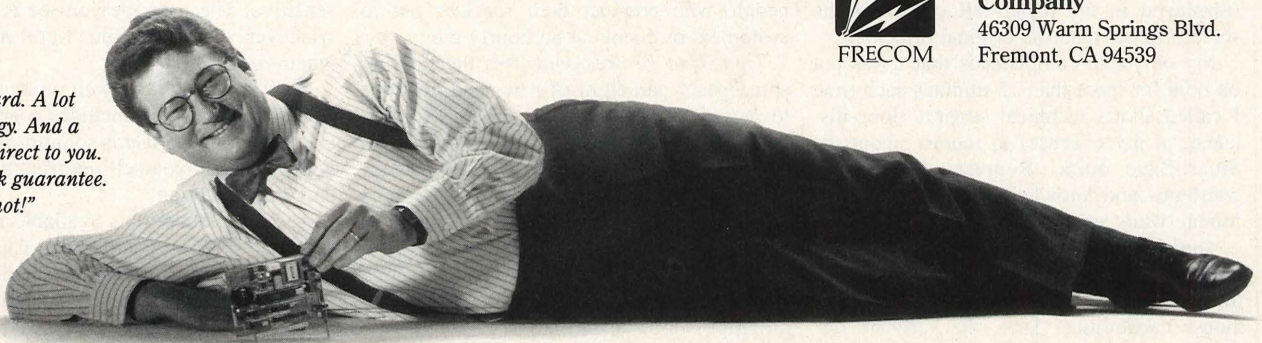


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Paul Masters, UC Berkeley MBA and Northern Telecom alum, is President of Fremont Communications.

same commands as 2.0. Several new features are accessible from on-screen menus. You merely highlight them with the cursor to select them. A 6-page *AppleWorks* Quick Reference guide (complementing the new 400-page manual) summarizes the commands in a handy desktop format.

The well-written tutorial is very helpful. It provides an overview of basic program features, and Claris included several electronic sample files to supplement it. An additional interactive training disk shows novices the ropes.

As a professional writer, I especially appreciate *AppleWorks* 3.0's word-processing enhancements. The built-in spelling checker offers more power than I ever got from Beagle Brothers' *TimeOut: QuickSpell*. You can check the entire document, a word, or a block of text; *QuickSpell* could only check an entire document. If you do a lot of writing, this feature is a great time-saver.

Since I often get paid by the word, I like the program's built-in word-counting feature, a function of the spelling checker. It gives me the number of words in an entire document or in a selected block of text. Counting the words in a block of text with *QuickSpell* is tedious by comparison.

Several new *AppleWorks* 3.0 features simplify program operation. For example, you no longer need to call up items by specifying their path names. Now, you need only to point at the desired subdirectory or text file and press Return.

The spreadsheet module incorporates more than two dozen new functions that increase its versatility in a small-business operation. New features, such as horizontal scrolling and enhanced printing capabilities, have been added to the database module.

AppleWorks 3.0 still has a few kinks. For example, the Smart-Save feature doesn't work well. When you switch drives to access information from another disk, Smart-Save is supposed to save the file to its original disk or directory. Similarly, the Save option from the main menu gives you the option of saving a file to its original directory (as opposed to the *AppleWorks* directory). Frequently, however, the file saves only to the currently active disk drive (displayed in the upper left corner of the screen) rather than the original directory.

My only real complaint is that I was put on hold for more than 15 minutes each time I called Claris technical support (long-distance, at my expense) to inquire about the Smart-Save quirk. Representatives were courteous and knowledgeable, but two 15-minute waits are inexcusable.

AppleWorks 3.0 is the most sophisticated Apple II productivity software released to date. True, it has neither graphics nor mouse capabilities. Sure, the software demands a lot of hardware (128K Apple IIs

get only 40K of desktop space after loading *AppleWorks* 3.0 into memory). Nevertheless, *AppleWorks* 3.0 brings a host of improvements, enhancements, and flexibility. It increases productivity and simplifies computing tasks. Now, if we can just get Claris to get rid of that bug. . . .

—CAROL S. HOLZBERG

Take the Headache Out of Billing

TimeSheet Professional

VERSION REVIEWED: 1.0

SYSTEM REQUIREMENTS: 512K IBM PC, PS/2; hard-disk drive recommended; MDA, CGA, EGA, or VGA; 5.25- or 3.5-inch

PUBLISHER: Software Partners, Inc., 999 Commercial St., Palo Alto, CA 94303; (415) 857-1110

PRICE: \$150

OVERALL PERFORMANCE: ★ ★ ★ ★

DOCUMENTATION: ★ ★ ★

ERROR HANDLING: ★ ★ ★

EASE OF USE: ★ ★ ★ ★

SUPPORT: ★ ★ ★

TimeSheet Professional											
User	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Week	Totals		
Task	May 15	May 16	May 17	May 18	May 19	May 20	May 21	May 22	Hour	Rate	Amount
acc - Widgets-MD	4.0	3.5		6.0					13.5		
acc - Widgets-QC			2.5		5.9				8.4		
acc - Widgets-Instal	2.0		4.0						6.0		
acc - Nonbill-Consult					5.0				5.0		
PRB - Design -Design			4.75			0.5			5.25		
PRB - Advert -Concept				3.0					3.0		
PRB - PR -Concept	2.0	4.25							6.25		
Totals	8.0	7.75	10.2	9.0	10.9	0.5			46.35		

TimeSheet Professional tracks expenses and automates billing to help your business run more efficiently.

Time is money, scolds the tired old adage, and *TimeSheet Professional*, a time- and expense-tracking program from Software Partners, really puts this concept to work. This program will make life much easier for people who contract their services out to customers or clients at an hourly rate.

TimeSheet Professional uses the familiar spreadsheet paradigm of rows and columns to record time and expenses. More specifically, it resembles a standard time sheet. Dates appear along the top of the screen, and a listing of clients or customers runs down the left-hand side. The time sheet metaphor is straightforward and intuitive. In fact, it took me only five minutes to create a sample time sheet before even looking at the program's documentation.

When you add a new client to your time

sheet, the program automatically prompts you for the client's name, a project description, a projected budget, an hourly billing rate, and the like. As you record time spent working on a project, the program uses this data to keep track of billing information for each client.

You can also use *TimeSheet Professional* to track charges that are not time-related. Pressing F5 calls up an expense screen into which you enter such charges for the current date and client. Actually, *expense* is a misleading term here, since you can track costs, expenses, and even client discounts (if appropriate) with an expense entry.

The Notes function annotates individual cells. You could, for example, use a note to explain why the cost of certain supplies was passed on to the client—helpful at tax time—or how the time billed to a client for a particular day was spent.

As an alternative to manually entering the time spent on a given task, I sometimes let *TimeSheet* itself assume this responsibility. Before I begin a task, for example, I open my time sheet, position the cursor in the cell corresponding to the client being billed for that task, and press F2, which activates the program's built-in timer. At this point, I exit *TimeSheet* and go about my business. When I'm finished (provided, of course, that I have not turned off my computer), I return to my time sheet and turn the timer off. *TimeSheet* automatically enters the data into the appropriate cell.

TimeSheet helps generate a variety of reports. These include summary and detail reports, which can be organized by month, week, client, or project. If none of these built-in reports meet your needs, you can create your own. Reports can be displayed on the screen (for quick review) or printed.

Despite the abundance of features, learning and using *TimeSheet* is a breeze. A list of what each function key does is always displayed across the bottom of the screen. You can access additional operations—loading a file, printing reports, changing system configurations, quitting, and so on—via pull-down menus. If you do run into trouble, pressing F1 calls up the program's superior on-line help system. Help is context-sensitive: The message you see is related to whatever operation you were performing when you called it up.

The User's Guide is well written and logically organized and includes a comprehensive index. *TimeSheet* is so intuitive that you will rarely find yourself referring to the written documentation.

Technical support is available from 9:00 a.m. to 5:00 p.m. Pacific time. Calls are not toll-free, but the company responds quickly. I called to ask a simple question about organizing multiple time sheets and received a complete and courteous answer in a matter

of minutes. To be honest, though, the program performs so well, I'd be surprised if you ever need support.

If your business is time-driven, *Time-Sheet Professional* can help you manage it more effectively. The program is flexible, intuitive, and, at \$150, affordable.

—JACK NIMERSHEIM

Keep Details in Check

Complete Calendar

VERSION REVIEWED: 2.5

SYSTEM REQUIREMENTS: 256K IBM PC, PS/2; CGA, EGA, VGA, or Hercules; 5.25- or 3.5-inch (for \$5 and registration card)

PUBLISHER: Stevenson Software, P.O. Box 5016, Berkeley, CA 94705; (415) 843-4421

PRICE: \$30 (standard); \$47 (RAM-resident)

OVERALL PERFORMANCE: ★ ★ ★

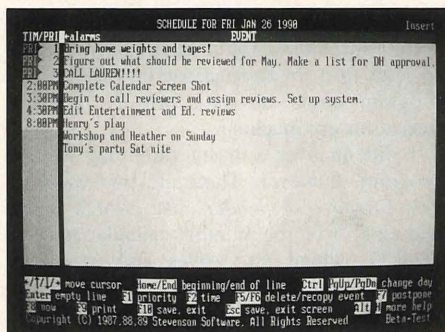
DOCUMENTATION: ★ ★ ★ ★

ERROR HANDLING: ★ ★

EASE OF USE: ★ ★ ★ ★

SUPPORT: ★ ★ ★ ★

I am one of those detail-oriented, list-making organization freaks that everybody loves to hate. I am also constantly on the lookout for software to help me manage



Lighten the load of a weighty to-do list with Complete Calendar.

life's overwhelming deluge of details. And I'm picky. For a piece of software to meet my stringent criteria, it must be straightforward, simple to use, and economical in operation. So when I came across *Complete Calendar*, it was love at first try. I'm happy to report that this program is a milestone in my ongoing quest for greater efficiency.

Complete Calendar, basically a to-do list and schedule manager, thinks much the way I do. It knows that I often need to add items to my to-do list while I'm in other applications. So I use the memory-resident version (it occupies 97K of memory—a big chunk, unfortunately), which lets me jot down reminders to myself whenever I feel the need. If I care to, I can instruct the program to

automatically load my to-do list onto the screen when I boot up my computer.

When I call up *Complete Calendar* by pressing the default hot keys (Alt-Esc), I am greeted with today's to-do list. A column down the left-hand side of the screen shows the time or priority (or both) I have designated for each entry. A middle column displays an asterisk next to each entry for which I have set a tickler alarm.

Complete Calendar's alarms are easy to set. Just type in a time (the program beeps if you don't enter it correctly), position the cursor next to the entry, and press Alt-S (for set). Alt-N turns off an alarm and resets it; Alt-C (for clear) clears an alarm entirely. When an alarm sounds, just call up the program and clear the alarm. A function key drops you back into whatever you were doing. No hassle, no mess, no time lost.

The monthly calendar lets you schedule recurring events in several ways. For instance, you can assign an event to every other day, every third day, the first Wednesday of every month, and so on. Every option I can think of is available.

The month-at-a-glance feature lets me see the first 10 characters of my entries from every day of the month—a great extra. If I can't, for example, remember what day I have a meeting with my boss, I would use this monthly view. Because the viewing

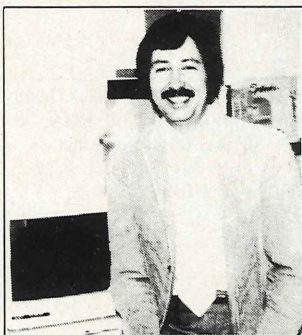
How To Get Your Share Of The Riches That Lie Hidden in Your Computer!

(Battle Ground, WA)

Using your home computer can be the key to financial freedom. The question is, how to start with little investment, part time.

Recently, this reporter heard about Ed Simpson, a 40 year old "computer maverick." Ed has just spilled the beans on 33 very profitable, low cost ways to make money with your home computer. He reveals priceless trade secrets that have been kept "under wraps" by a handful of men and women. For example...

- An Illinois fireman worked out a unique way to use his computer and now *nets \$180,000 a year*. Yet he's barely scratched the surface.
- A retired teacher in Utah "plays games" with her computer and *takes in \$35,000 a year*. You too can have a ball while making extra cash.
- An 18-year old student came up with this smart idea and *made \$200,000!* A California man applied the same



ED SIMPSON

principle and earned *\$150,000 in just 6 months*. You can do the same thing.

- And, like this Florida lady, you can save a computer hardware user hundreds of dollars and earn as much as *\$100,000 a year*. Not bad for "after hours" work.
- Plus dozens of additional, private ways you'll discover to

make surprising profits with your home computer.

Do you want to learn how to escape the "payday-to-payday" rat race? Ed Simpson invites readers of this column to preview his amazing collection of easy home computer business opportunities.

To get your Free fact-filled report, simply send your name and address to Ed Simpson, Dept. , Battle Ground, WA 98604-0010. Your package will be jet-expressed to you immediately.

Does This Look Familiar?

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C:\CAD\HOUSE.DWG
C:\CAD\HOUSE.BOM
C:\CAD\HOUSE.PCX
Insufficient Disk Space
2 File(s) Copied
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space for each day is not wide enough to see a whole entry at once, I'll probably only see the words "Meeting wi," unless, of course, I set up my appointments as "Jane Doe . . . meeting with . . ." But it does jog my memory. In month-at-a-glance mode, I can also scroll through different months. I cannot, however, call up a day's to-do list from within month-at-a-glance. Instead, I must return to the calendar screen, select the day, and press Enter.

Complete Calendar offers many other flexible and powerful features, among them: deleting and recopying events to other days, prioritizing the entries on my to-do list, and printing. My favorite feature is Postpone. When you position your cursor on an entry and press F7, *Complete Calendar* will ask you how far in the future (from zero to nine days) you would like to move your entry. You simply enter the number, and the program will move your entry to that day's screen—great for procrastinators! You can also search for text strings, for example, a lost appointment.

The program comes with a 32-page man-

ual that is both well written and straightforward. But, I'm happy to say, I only needed to refer to it for instructions on making the program come up automatically when I turned on my machine.

I did uncover a nasty little bug in the program, however. There are two ways to exit *Complete Calendar*: Esc, which saves and exits from the monthly calendar screen, or F10, which also saves and exits but leaves the program RAM-resident. The bug usually shows itself when I press Esc. Many times *Complete Calendar* will toss me out into a blank screen, although I can often recover without rebooting. Sometimes, however, I get the message "On-board memory bad, checking for segment address," from which I can't recover without rebooting my computer—scary.

When I called the publisher to ask about the problem, the president of the company, Chris Stevenson, answered the phone. Even before I identified myself as a reviewer, Stevenson was friendly and efficient. He explained that others had reported similar problems with the program and that the

company was working toward fixing it. He also guided me through a modification of my AUTOEXEC.BAT and CONFIG.SYS files. After that, my screen didn't freeze up anymore, although I still sometimes get the bad-memory message. Stevenson said that he thought the problem could be with my computer. For now, I make sure that I save my work before I call up the program—just in case.

Despite the bug, I still think that *Complete Calendar* is one of the best programs of its kind. Many competing programs, in my opinion, are too complicated to use, are rarely RAM-resident, and incorporate too many extraneous features. *Complete Calendar* is simple and to the point. Having it there, always a key combination away, makes me feel secure. It's sort of cathartic: When I have lots on my mind, if I feel stressed out or worried over the multitude of things I have to do, I simply call up *Complete Calendar* and dump all my troubles onto the screen. And as I see it, \$47 is a small price to pay for peace of mind.

—BRIANNA POLITZER

SOFTWARE QUICK TAKES

TITLE/PUBLISHER PRICE/VERSION	SUMMARY	SYSTEM REQUIREMENTS	RATINGS O D EH EU S
MacEnvelope Plus Synex 692 10th St. Brooklyn, NY 11215-4502 (718) 499-6293 \$295 v1.0	<i>MacEnvelope Plus</i> does for envelopes what word processors did for letters. It lets you keep a database with up to 100,000 addresses accessible with a simple point-and-click. You can print several envelopes at a time in a variety of fonts, styles, and type sizes. The program also prints postal bar codes, even from an ImageWriter. For direct mail or other mass mailings, <i>MacEnvelope Plus</i> offers search filters to hone your list. You can also import and export ASCII database files. If it were a desk accessory, <i>MacEnvelope Plus</i> would be a much more valuable program. It does what it does well, but is inconvenient as a stand-alone program. —Carol S. Holzberg	512Ke Macintosh. One drive. System 4.1 or higher	★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★
SoftBreeze SoftShell Systems, Inc. 1163 Triton Dr. Foster City, CA 94404 (415) 571-9000 \$169 v1.1	Sloppy and difficult to set up, this menu-driven file manager is anything but the soft breeze its name suggests. Not only is the documentation less than professional (there's even a page printed on top of another) but the program requires much DOS knowledge to set up. It also caused many crashes, which didn't make me happy. <i>SoftBreeze</i> does, however, include a collection of handy utilities for managing your files. The bottom line? If you really need a shell program to help you get a handle on DOS, I suggest you look elsewhere—perhaps to something more tried-and-true, such as Mouse Systems' <i>Power Panel</i> or XTree Company's <i>XTree Gold</i> . —Henry F. Beechhold	512K IBM PC, PS/2. Hard-disk drive. CGA, EGA, or VGA. Mouse optional. DOS 3.0 or higher. 5.25- or 3.5-inch	★ ○ ★ ★ ★ ★
Time Is Money Abaco Systems Consultants 385 Richmond Ave. Victoria, BC V8S 3Y2 Canada (604) 598-2226 \$60 v1.80	<i>Time Is Money</i> is a flexible, easy-to-learn calendar program. Unfortunately, the memory-resident mode still has bugs—detracting from its overall usefulness. The program lets you block out whole days or groups of days so you don't mistakenly schedule an appointment while you're on vacation, for example. Although the alarm function is useful, the documentation and technical support aren't. —Brooks Hunt	256K IBM PC, PS/2. Two drives (hard-disk drive recommended). CGA, EGA, VGA, MCGA, or MDA. DOS 3.0 or higher. 5.25-inch	★ ○ ★ ★ ○ ★ ★

Ratings Key: O Overall Performance; D Documentation; EH Error Handling; EU Ease of Use; S Support; ○ Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★★ Excellent

Software for Learning and Leisure

World GeoGraph

SYSTEM REQUIREMENTS: 768K Apple IIGS with ROM version 01 or higher (two drives recommended); color monitor recommended; 3.5-inch

PUBLISHER: MECC, 3490 Lexington Ave. N., St. Paul, MN 55126; (612) 481-3500

PRICE: \$139. Teacher's guide/manual: \$19

SUGGESTED AGES: Grades 6–12

COPY PROTECTED: Yes

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★ ★

ERROR HANDLING: ★ ★ ★

GRAPHICS QUALITY: ★ ★ ★ ★

EASE OF USE: ★

World GeoGraph teaches geography to kids in grades 6 through 12. It's a terrific tool with colorful maps, graphs, and an information database. More than just an electronic atlas, the program has interactive capabilities that make geography come alive in ways no mere textbook can.

I was able to examine up to 177 countries, focusing on social and cultural variables, politics, economics, and history. I liked zooming in on specific locations, viewing areas with or without national boundaries, and seeing how several countries compare with each other. Unfortunately, you cannot zoom in on a country's internal states, provinces, regions, or counties.

—CAROL S. HOLZBERG

The New Print Shop

SYSTEM REQUIREMENTS: 512K IBM PC, PS/2; CGA, EGA, VGA or Hercules; mouse optional; DOS 2.1 or higher; 5.25- or 3.5-inch

PUBLISHER: Broderbund Software, 17 Paul Dr., San Rafael, CA 94903; (415) 492-3500

PRICE: \$60

SUGGESTED AGES: 12 and up

COPY PROTECTED: No

OVERALL PERFORMANCE: ★ ★ ★

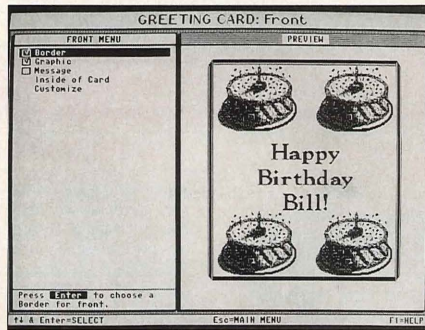
DOCUMENTATION: ★ ★ ★ ★

ERROR HANDLING: ★ ★ ★

GRAPHICS QUALITY: ★ ★

EASE OF USE: ★ ★ ★ ★

The New Print Shop builds on Broderbund Software's original best-seller, *The Print Shop*. The program—with which you can design cards, stationery, fliers, calendars, and multipaneled banners—now incorporates a snazzy new interface and features that make it even more appealing.



Designing greeting cards, banners, stationery, fliers, and calendars is even more fun with The New Print Shop.

The New Print Shop offers a library of clip art for your creations, along with complete control over graphic placement and size. Tools that clone and resize chosen images await you. You can flip your design vertically or horizontally, and align it along either axis or center it. The graphics editor, a great tool, has been refined and is more pleasant to use. Unfortunately, printouts—even from a LaserJet—have jagged, unseemly edges.

The program now comes with 10 fonts in five styles, including 3-D and shadow. But, beware: Some fonts are better than others. Like the graphics, the output is rough and jagged, marring the program's overall performance.

—CONAL LI LARKIN

Indiana Jones and the Last Crusade: The Graphic Adventure

SYSTEM REQUIREMENTS: 384K IBM PC, PS/2* (hard-disk drive recommended); CGA, EGA, VGA; DOS 2.0 or higher; 5.25- or 3.5-inch. Also for 512K Amiga and 512K Atari

PUBLISHER: LucasFilm Games, P.O. Box 10307, San Rafael, CA 94912; (415) 662-1800

PRICE: \$50

COPY PROTECTED: No

OVERALL PERFORMANCE: ★ ★ ★ ★

DOCUMENTATION: ★ ★ ★

PLAY SYSTEM: ★ ★ ★ ★

GRAPHICS QUALITY: ★ ★ ★ ★

EASE OF USE: ★ ★

Indiana Jones. The very name reeks of adventure. He has a Ph.D. in archaeology and, some would say, honorary doctorates in avoiding rolling boulders and snake-pit jumping. But what would you say if I told you that, as Indiana Jones, you'd have to use your brains more than your brawn? Would you believe me? Well, be prepared, because when you play *Indiana Jones and the Last Crusade*, you'll need to get out

your slide rule and wire-rimmed glasses, as well as your creaking leather jacket. The thinking person's action adventure game has arrived.

Of course, this game packs its fair share of fist fights and airplane chases, but these macho tests are not its main appeal. In order to find the Holy Grail, Indiana Jones must solve numerous puzzles and rescue his father from the clutches of Nazi villains. You have to use your brains to figure out these uncanny puzzles, and a lot of them are dangerous.

Some of the puzzles are just too hard to solve without hints, however, and the hint book costs \$13. For help, you must call a non-toll-free number—boo, hiss! Also, since the game comes on six 5.25-inch disks, I would not recommend it unless you have a hard-disk drive. But the graphics are super and the enjoyment quotient is superlative. I highly recommend it.

—AARON ROSTON

Manhunter 2: San Francisco

SYSTEM REQUIREMENTS: 256K IBM PC, PS/2*; one drive; CGA, EGA, VGA, or Hercules; 5.25- and 3.5-inch. Also for 512K Macintosh with one 800K drive, 512K Atari ST

PUBLISHER: Sierra On-Line, P.O. Box 485, Coarsegold, CA 93614; (209) 683-4468

PRICE: \$50

COPY PROTECTED: No

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★

PLAY SYSTEM: ★ ★

GRAPHICS QUALITY: ★ ★ ★ ★

EASE OF USE: ★ ★

If games were rated like movies, this one might get an R. It's a dark, brooding, often gruesome, and wickedly humorous tale. The year is 2004, and Earth is under the control of the aliens of the Orb Alliance. For reasons known only to the Orb Alliance, you have been chosen as a Manhunter, tasked with tracking down subversive humans. Discovering what to do and how to do it is all part of the game.

As in the original *Manhunter*, your wanderings will occasionally lead you into arcade-style action sequences. In *Manhunter 2*, these sequences have been modified to let the player adjust the level of difficulty—a big help for those of us who no longer have the reflexes of a 12-year-old. The documentation is intentionally light, but it does provide a walk-through to get you started. All in all, it's an original, highly visual adventure that will keep you looking over your shoulder.

—RICH SHEFFIELD

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512K=Requires 512K RAM

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END TELEPHONE TAG: Like an answering machine, Watson can record messages and let you access your messages from a remote location. But unlike an answering machine, Watson lets you leave individual messages for different people, and lets you update and change even individual outgoing messages from a remote location. It can screen and identify selected incoming calls, record the message, then immediately contact you—even if you have a car phone, or by activating a beeper—and play back the message. Watson can also dial out and deliver recorded messages.

"Jack. I got your message. The answer is no. You'll need a standard adapter cable. I'll check back later to see if you have any more questions, and I'll leave the answers for you in your voice mail box. I'll have Watson buzz my car phone as soon as you've called."
(Watson records called party's reply.)

2

TIMED OUTGOING MESSAGES: Because Watson runs in conjunction with a computer, and because computers have clocks, Watson can tell time. (Even the day and the date.) That means your message can say "Good morning" in the morning and "Good afternoon" in the afternoon. You can even have Watson call up certain phone numbers and leave different pre-recorded messages at different specified times during the day or week.

"Hello, Mother. It's 10:00 a.m. Just a reminder to take your medication. That's the green pill in the bottle by the bed. I'll call later to remind you when to take the other one. If you need anything, leave your message after the beep." (Watson records reply.)

3

SEPARATE MESSAGES FOR DIFFERENT CALLERS: Watson lets you create up to 750 personal voice mail boxes, so you and your callers can exchange private and confidential messages. Watson even notes the time and date of each call so you're never confused about when someone called.

"Bill, I had to leave early, but our meeting's been changed to 2:00, and it's now going to be at the client's office. See you there." (Watson records reply.)

4

CONFIRM APPOINTMENTS: Using Watson's outbound calling and message delivery feature, you can have Watson automatically dial selected names from its internal phone book, deliver a message, and get their reply; thereby eliminating the need for a call-back, and keeping you from missing important business opportunities. Ideal for stockbrokers, travel agents, and physicians' offices.

"Hello. This is Doctor William's office calling to remind you about your dentist appointment tomorrow. Please let us know—after the beep—if you can't make it. Otherwise, we'll look forward to seeing you." (Watson records reply, if any.)

5

OPPORTUNISTIC MESSAGING: Because Watson can deliver and accept messages, you can keep working, visit clients or accounts, run errands, or take care of personal business without having your business come to a halt.

"Hello. This is the Finestkind Fish Wholesaler. We're calling all of our key restaurant accounts to let you know we just got in a good, but limited, catch of flounder. If you're interested, leave a message as to how much you want, and when you want it delivered. Thank you."
(Watson records order, if any.)

6

TIMED TICKLER FILE: By entering time-sensitive information into a telephone and address database, Watson can automatically alert you, then make an outbound call and deliver a message like change of event or meeting notices, customer notification of "just arrived order," etc. Also perfect for busy heads of committees, people who arrange babysitting, talent or employment agencies, caterers, real estate agents, etc.

"Hi. This is Jim at the Main Street Gulf Station. According to our records, your annual inspection sticker will expire this month. If you want to schedule an appointment, we can inspect your car and take care of anything else you may want done. Just leave a message when it will be convenient for you, or call back later. Thanks very much."
(Watson records reply.)

7

FREE SLOTLESS MODEM* AND SOFTWARE—AN \$89 VALUE!

Order Watson at the special price of \$249 direct from the manufacturer and get a FREE Hayes-compatible, slotless MODEM worth \$89. (Phone orders qualify for this special offer, too.)

Mail coupon to:

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***Slotless Modem and Software: The Watson digital signal processing board supports both the voice mail function and the modem function—saving you an extra slot.**

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To make your experience with this great software just that much more enjoyable and hassle-free; we have installed an easy-to-use selection menu on the disks in our collection. Now all you have to do to have easy access to a program or the instructions is put the disk in your disk drive and type WOW.

Price Chart

Disks Ordered	Price per Disk
1-4	\$2.99
5-9	2.49
10-14	2.25
15-24	1.95
25-49	1.75
50+	1.49

Remember to count each disk in the multiple disk sets and to add 50¢ per disk if you need the 3 1/2" size.

BUSINESS

- ☐ **Stock Charting** (4121) A very comprehensive stock charting, analysis, and portfolio management package.
- ☐ **PC-Calc+** (4130-4132) The most powerful spreadsheet package available for under \$200! (3 Disks) **512K**
- ☐ **As-Easy-As** (4138) A fantastic, easy to use Lotus 1-2-3 spreadsheet clone.
- ☐ **Small Business Accounting** (4141) A must for all small business owners.
- ☐ **Billor** (4173) Complete billing system. Keeps track of your receivables and prints invoices and statements.
- ☐ **Form Master** (4177) Create any business form quickly and easily.
- ☐ **Black Book** (4185) Keeps track of addresses and phone numbers. Prints an address book.

HOME MANAGEMENT

- ☐ **Home Budget Manager** (4103) Helps you to design and stick to a budget.
- ☐ **Express Check** (4105) A fantastic checkbook program with great displays and reconciliation features.
- ☐ **Home Inventory** (4180) Keeps a permanent record of all your property.
- ☐ **Edna's Cookbook** (4217,4218) An electronic cookbook with several recipes—add your own. (2 Disks)

WORD PROCESSING

- ☐ **Form Letters** (4176) A collection of 100 form letters for all purposes.
- ☐ **PC-Write 3.03** (4610-4612) All the features you need including spell-checking. The BEST word processor under \$200! (3 Disks) **512K**

DATABASE/MAIL LIST

- ☐ **Mail List** (4205) Keeps track of your mailing list and prints mailing labels.
- ☐ **PC-File:db** (4213-4215) This database package is complete, powerful, and dBASE compatible! (3 Disks) **512K HD**

UTILITIES

- ☐ **Masterkeys** (4300) Like the popular Norton Disk Utilities, only better!
- ☐ **SimCGA** (4305) Runs many CGA programs on your monochrome system.
- ☐ **Tree View** (4347) An amazing DOS shell with pull-down menus.
- ☐ **HD Menu** (4379) Puts all the programs on your hard disk onto a one-touch selection menu. **HD**

GRAPHICS/PRINTING

- ☐ **Epson Utilities** (4333,4334) A collection of utilities and fonts to enhance your printer's print quality. (2 Disks)
- ☐ **City Desk** (4340) A simple desktop publishing system for newsletters.
- ☐ **On-Side** (4387) Prints your spreadsheets (or anything) sideways!
- ☐ **PC-Key Draw** (4391-4394) Powerful CAD design software system. Works w/keyboard or mouse. (4 disks) **HD**
- ☐ **PrintShop Graphics** (4397) A large collection of clip art (You must have PrintShop to use this disk!)
- ☐ **PrintMaster Graphics** (4398) Lots of clip art for people who already own the PrintMaster program.
- ☐ **Draft Choice** (4399) A professional drafting and design package. Create highly detailed schematics, flowcharts, circuits, and much more!
- ☐ **Banner Maker** (4801) Make banners of various styles and sizes. Requires an Epson or compatible printer.

EDUCATION

- ☐ **French I & II** (4500,4501) French vocabulary for students. (2 Disks)
- ☐ **Spanish I & II** (4505,4506) Spanish vocabulary and verb drills for Spanish language students. (2 Disks)
- ☐ **Algebrax** (4524) Excellent algebra tutor which has different levels for the basic to advanced student. **CGA**
- ☐ **Facts 50** (4525) A graphic geography lesson of the United States. **CGA**
- ☐ **Geography** (4526) Make learning fun with this geography trivia game.

FREE Disk Drive Cleaning Kit

With your order of 7 or more disks from this ad, receive this vital maintenance kit, FREE! (a \$9.95 value). Both 3 1/2" and 5 1/4" sizes are available. (Limit one free kit per order.)

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- ☐ **Funnels & Buckets** (4535) A fun, more effective way to teach kids math. It's a fun math learning game.
- ☐ **World** (4537) A fascinating electronic globe at your fingertips. **CGA**
- ☐ **Puzzle Search** (4538) An educational game with questions on American history, world history, and geography.
- ☐ **The Presidents** (4542,4543) A very comprehensive tutor and quiz of the presidents and their terms. (2 Disks)
- ☐ **Typing Tutor** (4550) Quickly improve your typing skills and speed with this friendly typing teacher. **CGA**

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In addition to your FREE disk drive cleaning kit with your order of 20 or more disks from this ad, receive your choice of a 5 1/4" (holds 75 disks) or a 3 1/2" (holds 40 disks) disk holder, FREE! (a \$12.95 value!). Additional disk holders may be purchased for a special price of only \$9.95 each. (Limit one free holder per order—Free holder offer good in U.S. only.)

- ☐ **BIBLE-Q** (4552) Test your Biblical IQ! A very fun BIBLE knowledge quiz.
- ☐ **Play 'n' Learn** (4555) Six learning games for pre-schoolers. **CGA**
- ☐ **DOS-a-Matic** (4559) Menu-driven program that makes using DOS easy!
- ☐ **Japanese** (4510) For the language student and business traveler.
- ☐ **German I & II** (4512, 4513) German vocabulary instruction. (2 Disks)
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- ☐ **School Mom** (4567) Lessons on art, math, and spelling for kids. **CGA**
- ☐ **Speed Read** (4568) Improve your reading speed and comprehension.

MISC. APPLICATIONS

- ☐ **Eliza** (4805) Let the famous computer psychiatrist analyze you!
- ☐ **Lotto!** (4823) Complete system for most states' lotteries. (Req. printer)
- ☐ **Astrology** (4831) Let the computer tell you what lies ahead in your stars!
- ☐ **Brother's Keeper** (4852-4853) A great genealogy program that traces your family roots! (2 disks)
- ☐ **SeedMaster** (4837-4849) The complete King James BIBLE on disk! Allows quick access to any word, phrase, topic. (13 Disks) **HD**
- ☐ **Piano Man** (4902) Record, edit, and then play back your favorite tunes. Also lets you turn your computer's keyboard into a musical instrument!

GAMES

- ☐ **Striker** (4400) Arcade helicopter attack game. Bomb and shoot enemy bases and armaments. (CGA—Will not work on EGA/VGA)
- ☐ **Dracula in London** (4406) Track down and defeat Dracula. **CGA**
- ☐ **18-Hole Miniature Golf** (4414) Kids really love this one! **CGA**
- ☐ **Baseball** (4415) Pick your team and swing for the fences! A game of baseball strategy and arcade play. **CGA**
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- ☐ **Scrabble** (4460) Test your word power with this always fun game. **CGA**
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512K=Requires 512K RAM

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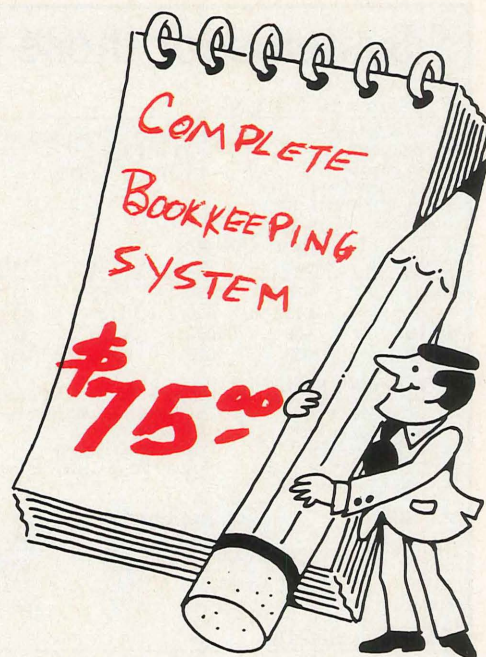
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C (most dialects)
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Netware
Novell

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SuperCalc
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DOS (all versions)
Unix/Xenix

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Multimate
PCS
PFS
Volkswriter
Word
WordPerfect
WordStar
XyWrite

This is a partial listing of supported software. Most popular programs and many specialty applications are supported.



Support is the problem most frequently mentioned by computer users. Whether the user is a novice first trying to understand DOS or experienced users who suddenly encounter a situation they can not solve.

The Help Network is available to software users who need immediate help. By dialing 1-900-884-HELP (884-4357) you enter the Help Network. The operator asks what product you need assistance with and then transfers you to a qualified assistant.

You benefit from the Help Network because you do not have to pay any advance amounts or purchase service contracts to utilize the Help Network. Time is billed at a rate of \$2 for the first minute and \$1.50 for each additional minute of connect time, and the charges are added to your telephone bill. The typical support call is less than five minutes, and most take less than three minutes.

S Systems for those who want to compute, not complain

S Systems 10 MHz XT

- Intel 8088-1 CPU
- Phoenix BIOS
- 640K on board
- TEAC 360K floppy drive
- Multi I/O w/1P, 1S, 1G, fdc, clock
- Enhanced 101 key keyboard
- XT style case
- 165W power supply

XT/10 Drives	Video Options			
	Mono	CGA	EGA	VGA
Single	650	775	1045	1115
Dual	675	855	1125	1195
20MB	900	1050	1275	1350
40MB	1050	1210	1450	1525

S Systems 286/12

- Intel 80286-12 CPU
- Amn or Phoenix BIOS
- 1MB RAM on board
- TEAC 1.44 3.5" floppy drive
- Hard/floppy drive controller
- Enhanced 101 key keyboard
- Baby AT style case
- 200W power supply
- Multi I/O card w/1P, 2S ports

AT 286-12 Drives	Video options		
	Mono	EGA	VGA
Single	855	1305	1375
20MB	1190	1640	1715
40MB	1345	1795	1865

S Systems 286/16

- Intel 80286-16 CPU
- Award BIOS
- 1MB RAM on board
- TEAC 1.44 floppy drive
- Hard/floppy drive controller
- Enhanced 101 key keyboard
- Baby AT style case
- 220W power supply
- 1P, 1S Port

AT 286-16 Drives	Video options		
	Mono	EGA	VGA
Single	1010	1455	1530
20MB	1345	1795	1865
40MB	1500	1950	2020
80MB	1765	2215	2285

S Systems 386-20

- Intel 80386-20 CPU
- Amn BIOS
- 1MB on board
- TEAC 1.44 & 1.2MB floppy drives
- Hard/floppy controller (1:1)
- Enhanced 101 key keyboard
- AT full style case
- 220W power supply
- 1P, 2S ports

AT 386-20 Drives	Video options		
	Mono	EGA	VGA
	1550	1995	2060
20MB	1665	2085	2150
40MB	2000	2400	2475
80MB	2225	2650	2715

Monochrome Monitors

Amdek V210A	\$85
Amdek V410A	150
NEC Multisync GS 2A	220
Samsung mono-12 flat	105
Samsung mono 14	105

Color/EGA Monitors

Amdek C732	\$445
Amdek C722	515
AST EGA	515
Mitsubishi 1410C	345
Mitsubishi 1430C	405
Samsung EGA 14	375

VGA/CAD Monitors

Mitsubishi 1381A	\$515
NEC Multisync 11A	505
NEC Multisync 3D	675
NEC Multisync 4D	1150
NEC Multisync 5D	2350
NEC Multisync plus	915
NEC Macsync	600
Sony 1302P	Call

Printers

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NEC P5200	525
NEC P5300	695
Okidata 320P	375
Okidata 321P	520
Okidata 390	520
Okidata 391	705
Okidata 393	1105
Okidata 393C	1185
Toshiba 301	315
Toshiba 311	380
Toshiba 341SL	650
Toshiba 351SX	985

Laser Printers

NEC LC 890	\$3405
Toshiba Pagelaser	2785
HP Laserjet 11/11D	Call
HP Laserjet 11P	1050

Plotters

HI DMP-52	\$2495
HI DMP-52MP	2945
HI DMP-61	3245
HI DMP-62	4000

Video Boards

Hercules Colorcard	\$155
Hercules Incolorcard	210
Hercules VGA	189
Paradise EGA-350	195
Paradise EGA-480	210
Paradise VGA-Plus	280
Paradise VGA-Plus-16	320
Paradise VGA-Prof	470
Quadram Quadega	250
Video 7 Vega Deluxe	225
Video 7 Vega VGA	300
Video 7 Fastwrite VGA	380
Video VRAM-VGA	475

Multifunction/Memory Boards

AST Rampage 2-256	\$290
AST Rampage-286	Call
AST Rampage Plus-286	420
Intel Above 286-Plus	435
Intel Above PS286 Plus	485

Accelerator Boards

Intel Inboard 386-PC	650
Intel Inboard 386	900

Floppy Drives

Toshiba 360K	\$70
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Mountain 4340	400

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Intel 80387-25	590
Intel 80387SX	375
Intel 80c287	315

Software

Aldus Pagemaker	\$455
dBASEIV	450
Logitech catchword	135
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Lotus Symphony	415
Microsoft Windows 286	70
Microsoft Windows 386	130
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Microsoft Works	105
Paradox 3.0	415
PFS First Publisher	70
Ventura Publisher	485
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Symantec Q&A 3.0	215

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Logitech Bus Mouse	Call
Microsoft Mice	Call

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US Robotics 2400	Call
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Okitel 2400B int	200
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Toshiba 1600-20	\$3375
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Toshiba 5100-40	4275
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Toshiba 5200-100	5475
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Zenith Minisport 1mb	1395
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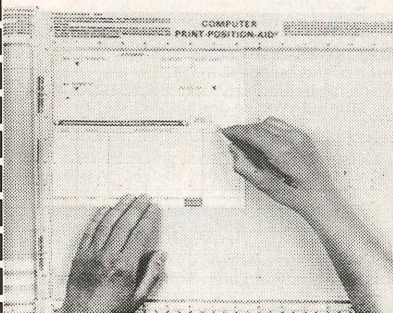
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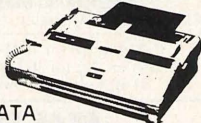
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HOME OFFICE COMPUTING AD INDEX

American Small Business	13
Autodesk	11
Capstone Computing	24
Charles Schwab	31
Check Free	41
Citizen America	27
CompuServe	37
Computer Business Serv.	35
Computer Friends	28
Curtis Mfg.	C4
ELS Enterprises, Ltd.	82
Express Mail	7
Fremont Communications	73
Gold Hill	78
Haven Corp.	35
Hayes	15
Howell Assoc.	81
Intuit	29
Lynx Automation	24
M-USA Business Systems	39
Merriam Webster	5
Mitsubishi Elec.	32, 33
NRI McGraw Hill	17
Natural Microsystems	79
Niche Engineering	75
Owen Publishing	75
Panasonic	2
Parker Bros.	69
Peachtree	19
People's College	8
Smith Corona	42
Softdisk	71
Software Excitement	80
Star Micronics	21
Symantec	25
Tandy	C2, 1
Tandy	9
Timeslips Corp.	23
Toshiba America	C3

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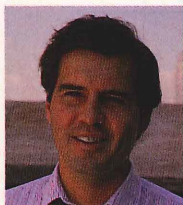
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The Quick-on-the-Draw Independent

BY NICK SULLIVAN



Advanced technological tools can make a small business look just like a big corporation to the outside world. That's one of the premises of this magazine and one of the main forces driving

people into their own businesses. With scanners and laser printers, how will anyone know your marketing communiqué originated in a spare bedroom—and not in that architectural nightmare down on First Street? With voice mail, fax, cellular phones, and modems, how will anyone know you work on the prairie and not in a downtown canyon?

As it happens, I can usually tell a small outfit from a big one by making a phone call. How? Because the person in the back bedroom on the prairie is more accessible. Since so many are running one-person outfits, that's not surprising. If the chairman of General Motors were sitting in a room by himself and I had the right telephone number, I guess I'd get him too.

When I call a small outfit, I don't wait on hold at long-distance rates. I don't play detective to figure out who I need to speak with. I don't endure voice-mail labyrinths that dead-end. I get the person I need to do my business with.

If I have to leave a message, my call is usually returned within the hour or at least that day. The message always hits its target because independents are more likely to use call forwarding, cellular phones, and beepers than corporate workers. And more and more independents have their own 800 numbers, which used to be the private preserve of corporations.

Most independent operators I deal with use electronic mail—and they check their mailboxes several times a day. I don't have to go blue in the face leaving phone messages that never seem to hit home. I know that if I leave a message in the morning, I'm likely to get a response by the afternoon; if I leave it in the afternoon, I'll have a response the following morning.

Why more corporate workers don't use electronic mail, or don't divulge their ad-



resses if they do, is a mystery to me. Maybe they're caught up in their own internal corporate mail systems and don't need aggravation from the outside world. Maybe it's because they already have jobs. After all, one of the main reasons independents make themselves so available is that they're always on the lookout for potential clients or customers.

Independents act quickly. They operate in the lean-and-mean mode so many corporations are striving for these days. Independents aren't insulated by a bureaucracy. They don't have to ask anyone else before they make a decision. They can't blame anyone else if they make the wrong deci-

mate fax machine, not communally used.

Meanwhile, I sometimes wait weeks to get material from a corporation. Rather than faxing immediately while the to-do is fresh in their minds, corporate employees postpone the trip down the hall and around the corner where they know they'll have to wait in line. It's like going to the bank in the days before electronic tellers. That's why some fax-board manufacturers make the case that buying a corporate worker a fax-board is like giving him or her a private fax machine. And if people at home have them, why shouldn't corporate workers?

Generalizations are dangerous, and this one is no exception. I don't intend to glorify all independents at the expense of all corporate workers—smart, talented, responsive, and efficient people show up everywhere. It's not that the people are different. But the way they use technology often is. Both groups crunch numbers, put words in a row, and produce pretty reports. But, more than corporate workers, independents use the same tools to put themselves in the middle of the action.

No doubt, they've built up a communications arsenal and mastered it to quell their own and others' fears that they would disappear if they didn't show up in the office building. But because they are individuals using personal tools—and not groups sharing resources—they are becoming more prominent than anyone ever imagined they could be.

In the old days, the self-employed consultant, unattached to anything but a briefcase, had no identity. Out of sight, out of mind—and often out of work. But the tables are turning. The independent has a high-profile image and uses it to attract business. It's the hard-to-reach, slow-to-respond corporate worker who's having an identity crisis. ■

The self-employed operate in the lean-and-mean mode so many corporations are striving for these days.

sion. And they can't pass work off to assistants, so they finish it themselves.

Twice in the last two weeks I've been talking to someone who's said, "Did you see that article in the *Journal* yesterday?" I hadn't, and I wanted to see the clips. Whoosh—they came over my fax machine while we were talking on the other line.

Now, that's quick on the draw. No one has to write "fax *Journal* clip to Nick" on a to-do list that never gets done. It's already done. Many independents, though probably not most, have fax machines next to their desks. They have a real leg up on their corporate counterparts here, since it's a pri-

NICK SULLIVAN is a senior editor who telecommutes to HOME-OFFICE COMPUTING's New York office from his home in Massachusetts. He can be reached on CompuServe (ID: 76703,744) or MCI Mail (ID: NSULLIVAN).

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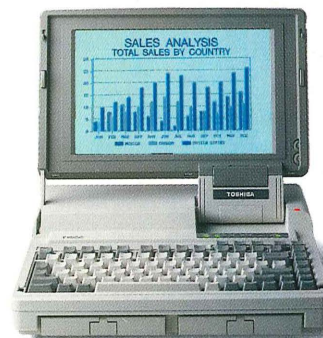
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